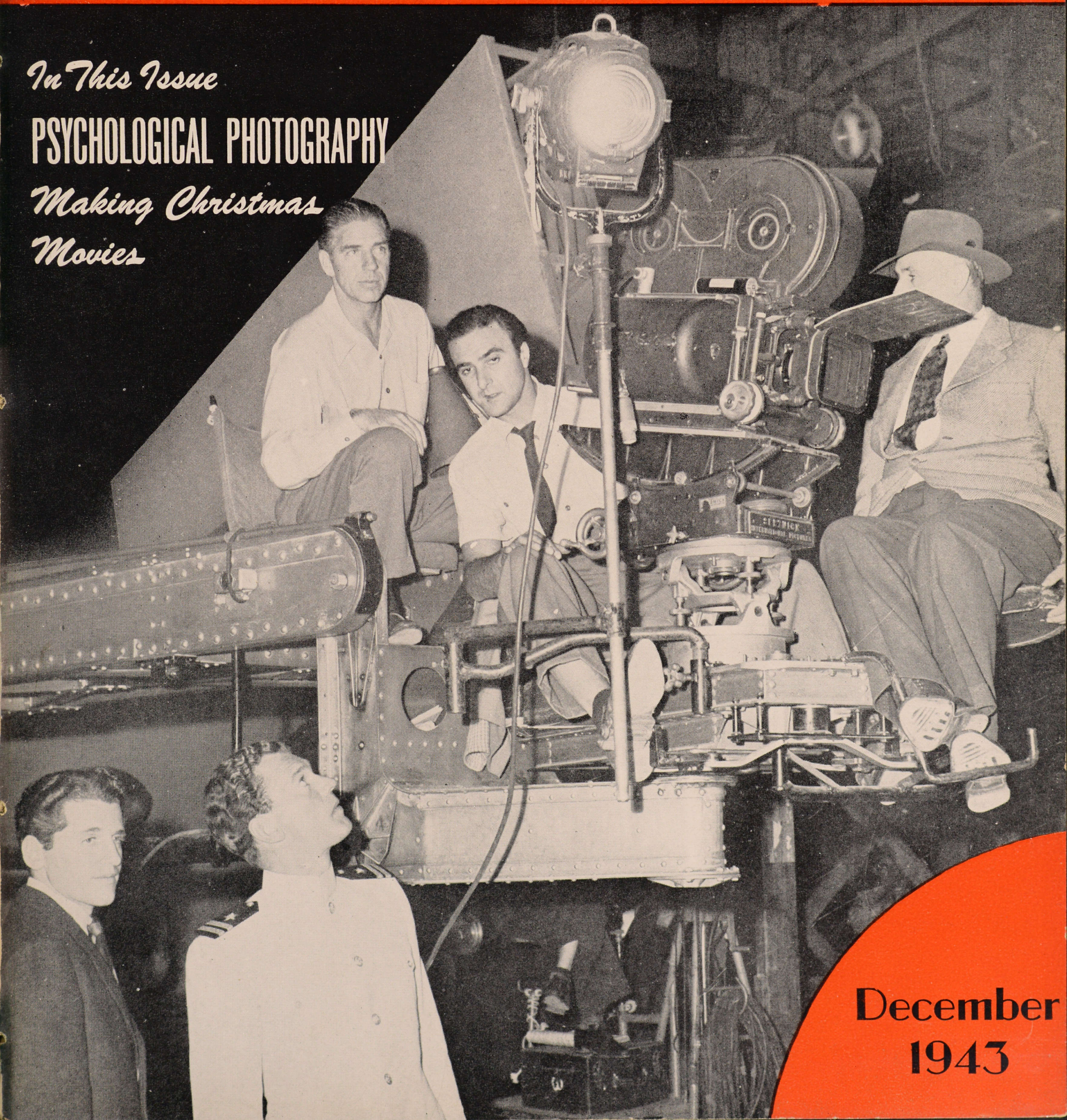
25¢
FOREIGN 35c

AMERICAN Cinematographer

★ THE MOTION PICTURE CAMERA MAGAZINE ★



In This Issue

PSYCHOLOGICAL PHOTOGRAPHY

Making Christmas Movies

December
1943

To the American cinematographer,
his able ally the technician, and all
the rest at home and overseas
SEASON'S GREETINGS

DU PONT MOTION PICTURE FILM

E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware
In New York: Empire State Building
In Hollywood: Smith & Aller, Ltd.

ARMY E NAVY — DU PONT REG. U. S. PAT. OFF. — ARMY E NAVY

Patterson Screen Division *Film Products Division*

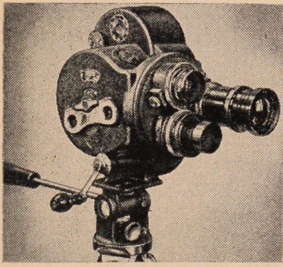
BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

THIS EYEMO REMEMBERS PEARL HARBOR!

DECEMBER 7, 1941—*Jap planes bomb Pearl Harbor. Len H. Roos, A. S. C., F. R. P. S., Staff War Correspondent Pathe News, films the action with his EYEMO.*

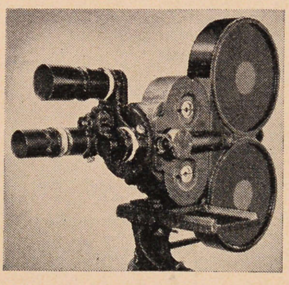
★ War Correspondents and other professional cameramen must be ready for whatever breaks—good or bad. These men have learned from experience that when their camera is a 35mm. EYEMO—they never fail. *EYEMO gets the picture!*

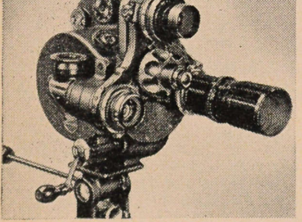
Today EYEMO Cameras have gone to war. The armed forces need more than we can supply. That is why EYEMOS are not now available to civilians. The armed forces must be served first—we know you agree with that. When Victory is won EYEMO Cameras will be back in civilian clothes. Then, as formerly, if a stock model EYEMO does not meet your requirements *exactly,* we will modify or change it for you. You will never have to accept a compromise in an EYEMO.



←**EYEMO MODELS L AND M** . . . Three-lens turret head; "sound" field viewfinder is matched to six lens focal lengths by turning a drum. "Sound" aperture plate. Model L has speeds of 4, 8, 12, 16, 24, and 32 f.p.s.; Model M has speeds of 8, 12, 24, 32, and 48 f.p.s.

EYEMO MODELS P AND Q . . . These are similar to Models N and O, respectively, except that P and Q are equipped for alternate, optional use with electric motor and *external* film magazines. External film magazines extend maximum scene length from 55 to 400 feet. Offset finder eyepiece prevents interference.→





←**EYEMO MODELS N AND O** . . . Three-arm offset turret permits broader choice of lenses. Turret lock is particularly appreciated with long, heavy lenses. Visual, prismatic focuser with magnifier. Model N has speeds of 4, 8, 12, 16, 24, and 32 f.p.s.; Model O has speeds of 8, 12, 16, 24, 32, and 48 f.p.s.

BELL & HOWELL COMPANY
Chicago; New York; Hollywood; Washington, D. C.;
London. *Established 1907*

A PROMISE TO EVERYONE WHO'S WAITING TO BUY POSTWAR FILM EQUIPMENT

The new cameras and projectors that Bell & Howell will produce after Victory will *not* be hurriedly assembled from leftover parts. They'll be improved by the discoveries we have made in producing secret devices for the armed forces. You'll buy them and *use* them with the same pleasure and confidence you've always had in Bell & Howell equipment.

CAN OPTI-ONICS OFFER YOU A FUTURE?

Yes! If you're an expert engineer . . . experienced in electronic or mechanical design . . . we need your help in exploring the broad peacetime horizons of Opti-onics. It's a *big* job . . . for *big* men. If we're talking *your* language, write us your whole story and enclose your photo. We'll set up an interview for you.

Address: Chairman, Opti-onics Development
7100 McCormick Road, Chicago 45, Illinois

MOTION PICTURE CAMERAS AND PROJECTORS

PRECISION-MADE BY
Bell and Howell

*Opti-onics is OPTIcs . . . electrONics . . . mechanICS. It is research and engineering by Bell & Howell in these three related sciences to accomplish many things never before obtainable. Today Opti-onics is a WEAPON. Tomorrow, it will be a SERVANT . . . to work, protect, educate, and entertain.

Opti-onics
BELL & HOWELL

*Trade-mark registered

BUY WAR BONDS

AMERICAN CINEMATOGRAPHER

THE MOTION PICTURE **CAMERA** MAGAZINE

VOL. 24 DECEMBER, 1943 NO. 12

CONTENTS

Psychological Photography.................... *By* Steve O'Donnell 430

Snow Photography.............. *By* Alvin Wyckoff, D.Sc., A.S.C. 432

Aerial Photography First Step To Battle.......................... 435

Aces of the Camera—John Boyle....... *By* W. G. Campbell Bosco 436

Making Christmas Movies......... *By* Glenn R. Kershner, A.S.C. 437

Electronic Tubes................... *By* T. M. C. Lance, A.M.I.R.E. 438
(Courtesy of Journal of British Kinematograph Society)

Recent Developments In Sound-Tracks............................ ....*By* E. M. Honan and C. R. Keith 440

It's Fun to Develop and Print Your Movies....*By* James R. Oswald 444

Among the Movie Clubs... 448

Index to Volume XXIV—1943..................................... 456

The Front Cover

On this month's cover is Stanley Cortez, A.S.C., Director of Cinematography on David O. Selznick's production of "Since You Went Away." It is one of those rare shots of its kind that you get when no one in the picture knows they are being photographed. The actor in Naval uniform is Joseph Cotten. The film is being produced for United Artists release.

The Staff

EDITOR
Hal Hall

TECHNICAL EDITOR
Emery Huse, A.S.C.

ASSOCIATE EDITOR
Edward Pyle, Jr.

WASHINGTON STAFF CORRESPONDENT
Reed N. Haythorne, A.S.C.

MILITARY ADVISOR
Col. Nathan Levinson

STAFF PHOTOGRAPHER
Pat Clark

ARTIST
Alice Van Norman

CIRCULATION
Marguerite Duerr

ADVISORY EDITORIAL BOARD
Fred W. Jackman, A. S. C.
Victor Milner, A. S. C.
James Van Trees, A. S. C.
Farciot Edouart, A. S. C.
Fred Gage, A. S. C.
Dr. J. S. Watson, A. S. C.
Dr. L. A. Jones, A. S. C.
Dr. C. E. K. Mees, A. S. C.
Dr. W. B. Rayton, A. S. C.
Dr. Herbert Meyer, A. S. C.
Dr. V. B. Sease, A. S. C.

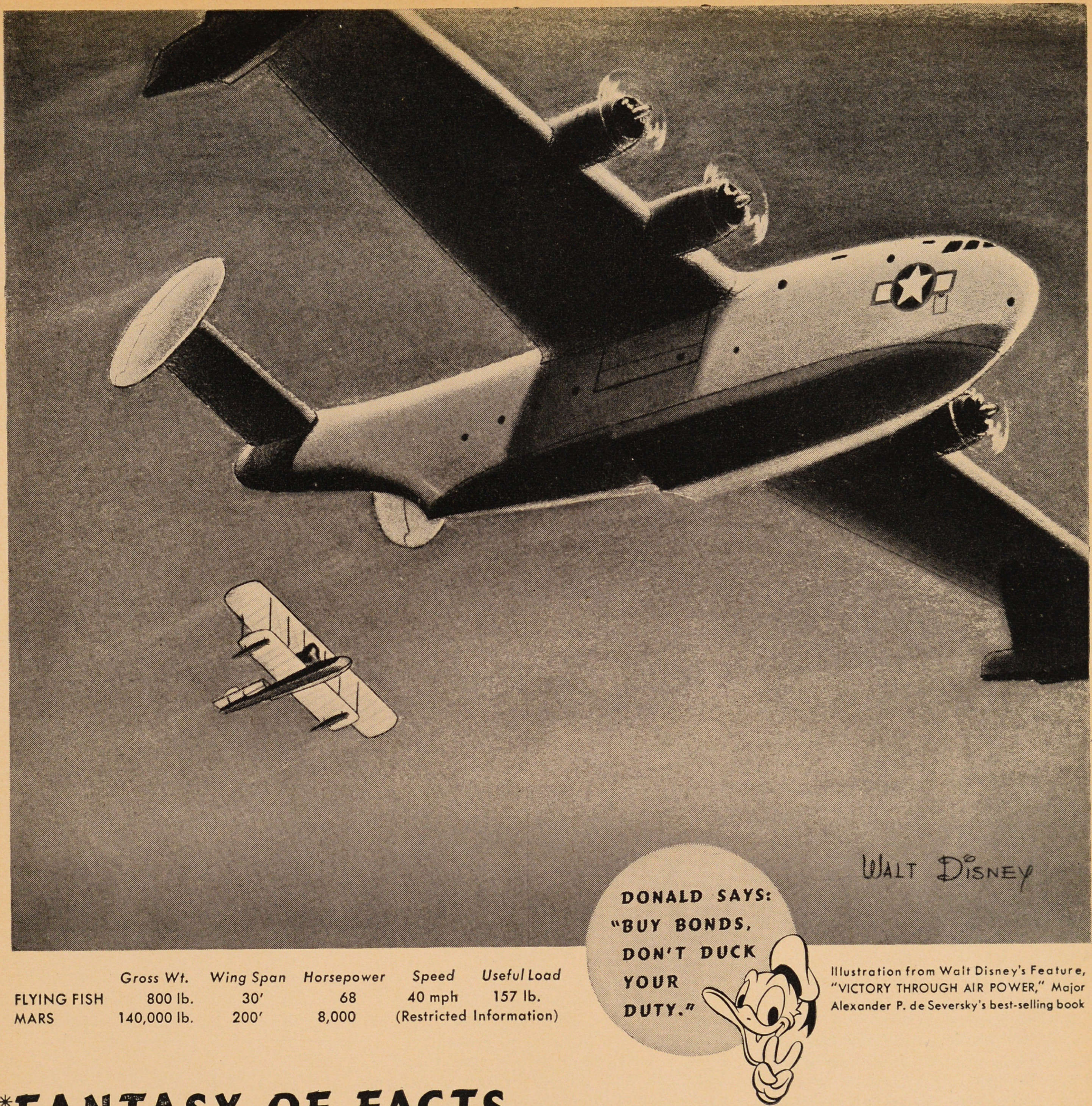
AUSTRALIAN REPRESENTATIVE
McGill's, 179 Elizabeth Street, Melbourne,
Australian and New Zealand Agents

Published monthly by A. S. C. Agency, Inc.
Editorial and business offices:
1782 North Orange Drive
Hollywood (Los Angeles, 28), California
Telephone: GRanite 2135

Established 1920. Advertising rates on application. Subscriptions: United States and Pan-American Union, $2.50 per year; Canada, $2.75 per year; Foreign. $3.50. Single copies, 25c; back numbers, 30c; foreign, single copies 35c, back numbers 40c. Copyright 1943 by A. S. C. Agency, Inc.

Entered as second-class matter Nov. 18, 1937, at the postoffice at Los Angeles, California, under the act of March 3, 1879.

66


WALT DISNEY
DONALD SAYS: "BUY BONDS, DON'T DUCK YOUR DUTY."

	Gross Wt.	Wing Span	Horsepower	Speed	Useful Load
FLYING FISH	800 lb.	30′	68	40 mph	157 lb.
MARS	140,000 lb.	200′	8,000	(Restricted Information)	

Illustration from Walt Disney's Feature, "VICTORY THROUGH AIR POWER," Major Alexander P. de Seversky's best-selling book

*FANTASY OF FACTS...

This picture and caption show how far aviation has progressed in the three short decades which separate Glenn H. Curtiss' FLYING FISH and Glenn L. Martin's MARS. The Navy's first flying boat had little need for anti-icing or hydraulic systems but today the MARS and every leading American and Canadian aircraft is equipped with ADEL products known for their ***Design Simplicity***—*their light weight, small size and superior performance. Skills now 100% war-directed will with peace be turned to new products for home and industry with similar advantages resulting from the ADEL Policy of* ***Design Simplicity****. Take Donald Duck's good advice. Buy Bonds now so you will be able to buy these exciting new and immeasurably better products with the ADEL trademark.*

After VICTORY... *the* ADEL-AGE

*TRADE MARK

ADEL
PRECISION PRODUCTS CORP.
Burbank, California
Huntington, W. Va.

Engineering Offices: Dallas, Texas • Detroit, Michigan • Dayton, Ohio • Hagerstown, Maryland • Seattle, Washington • Toronto, Canada

COPYRIGHT 1943 ADEL PRECISION PRODUCTS CORP

Psychological Photography

By STEVE O'DONNELL

PSYCHOLOGICAL photography -- that is the provocative new expression used to describe the strange and subtle, but highly effective, manner in which gifted Stanley Cortez is playing upon the mind and the emotions with his camera, as he shoots "Since You Went Away" for David O. Selznick.

This technique is something new and then again it is not. It combines everything that is good in that which is old with some extremely good new ideas.

Cortez has always been known as a bold adventurer into the realm of a new camera technique. Yet he has never been a radical thinker, intent simply upon doing something in a new way, regardless of whether or not it was a better way. He has reverence for tradition, for the ways of doing things that time and the experience of himself and other craftsmen have proven to be sound. So when Cortez says he has something new, you may be sure that he means something better than we had yesterday.

What, then, is the phychological photography that has everyone talking about "Since You Went Away." It is a treatment of emotional situations that unconsciously takes the onlooker through the emotional experience of the actors, as though he himself were living the part.

To understand it, you should first understand Cortez. He is a man to whom moods are of great importance. For example, he loves music, not alone for the relaxation he finds in it, but because he can create, intensify, or even change his own mood, with enough of the right kind of music. Certain combinations of sounds effect him, as they do most sensitive people, emotionally.

Now he has slowly come to the realization that sound and light are but different aspects of the same thing, so far as the effect upon human emotions is concerned. We have long been familiar with the fact that, as a general thing, allegro passages produce sensations of lightness and gayety; largo passages, sensations of depression and sadness.

Cortez has long thought that if only cinematographers could come to regard the use of light as musicians regard the use of sound, motion picture photography would take a long step forward on the road to artistic maturity.

In the past, he has experimented often, but has been restrained by various considerations from giving his dynamic concept of cinematography full reign. When he was first assigned by Mr. Selznick to shoot "Since You Went Away" Cortez determined to explain his newly developed theory in detail.

To his vast delight, Selznick quickly sensed the tremendous values in the Cortez idea of psychological photography. With characteristic daring, the man who sunk $4,500,000 in "Gone with the Wind," while critics shook their heads, and who emerged with the greatest smash hit in motion picture history, told Stanley to give his ideas free play.

The results, seen thus far only by a select few who have been permitted to view the rushes, are truly astonishing. As you watch scenes from "Since You Went Away" on the screen, you are unable to understand at first why they effect you so profoundly.

In fact, the entire picture is a slice of life today, a cross-section of America under the impact of total war.

The sequences are dramatic, surely, but they are the same experiences through which most of us are living. It would be natural to suppose that they would lose something in being translated from real life to the screen. Instead, they gain something and they strike us with greater emotional impact than the things that we see about us in these tense, historic days in which we are living.

It is Stanley Cortez, at work with his lights and his lense, at work finally with a producer of Selznick's boundless imagination. Where the average man would lay restraining hands upon Cortez, Selznick is urging him on, or, to be more exact, leading him on, for Selznick by now has grasped the implications of the psychological technique so firmly that he frequently makes suggestions on the use of lights and lense that are in advance of Cortez's own thoughts.

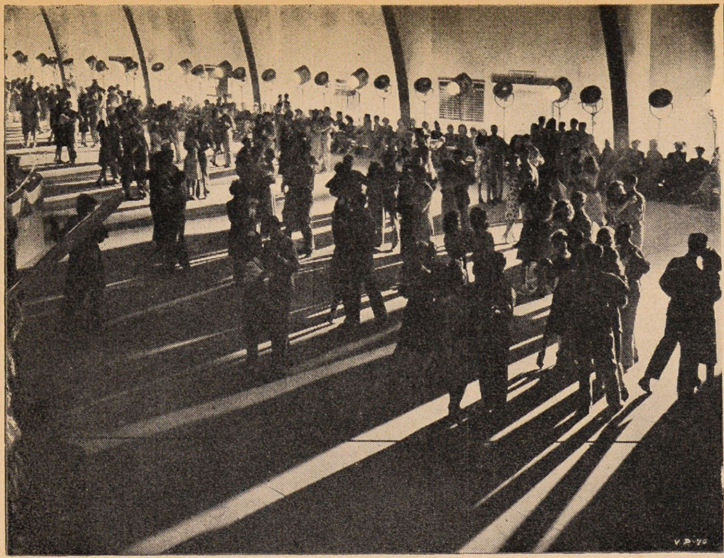
Of course, a complete telling of the story of this development in cinematography in its relation to the story would give away in advance much of the effective material in "Since You Went Away." But Selznick, although opposed on grounds of principle to the practice of giving away story angles, or the detail technical effects, has graciously consented to permit description of one scene in "Since You Went Away" in order to illustrate the manner in which psychological photography is employed.

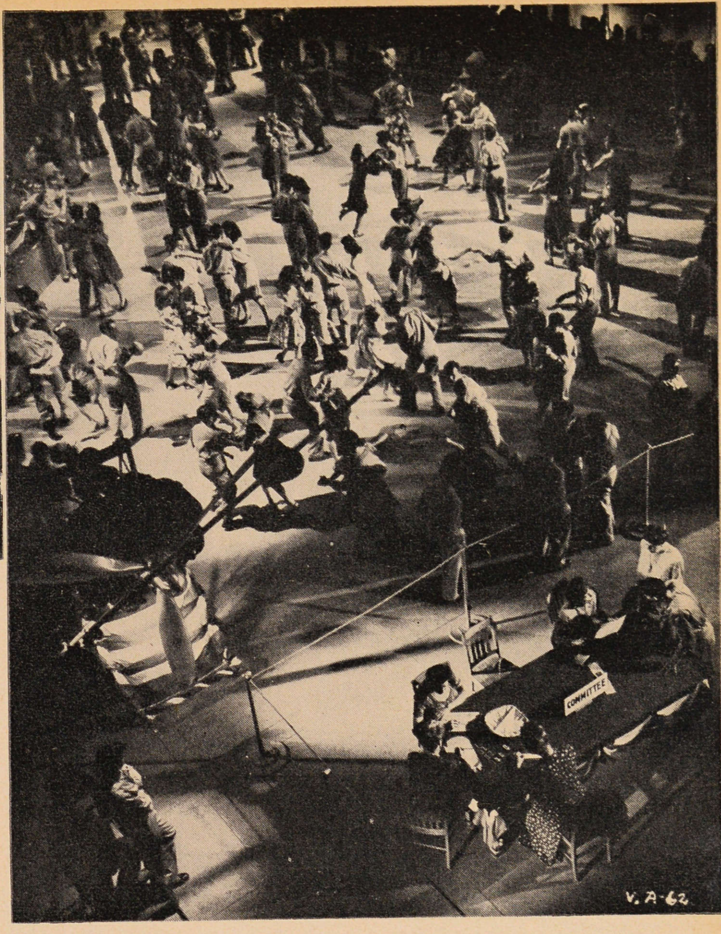
There is a scene in which Claudette Colbert, Jennifer Jones, and Shirley Temple, in the roles, respectively, of Anne Hilton and her two 'teen age daughters, Jane and Brig, enter a big hotel lobby, crowded, as all such lobbies are today. They are happy and gay, in anticipation of a long-awaited reunion with the husband and father of the family, a man who has waived his 3-A draft status to enlist.

Cortez makes you feel the gayety of the three without letting you know how. There is plenty of light on this scene and plenty of motion. This brightness is infectious and seems to enter your own spirit as you watch (or, rather, experience) the scene.

They walk up to the desk and make inquiry. A telegram is handed to Claudette. It is bad news. Tim Hilton will not be able to keep the rendezvous.

You next see the three, Claudette, Jennifer and Shirley, slowly retracting their steps down a long hotel corridor. In place of the scores of bright lights which he used in the lobby scene, Cortez now uses but one and that one light casts three long shadows, sad shadows,





Three striking examples of lighting effects achieved by Stanley Cortez, A.S.C., in photographing the David O. Selznick production of "You Went Away".

shadows that seem to be great weights, each weight fastened to the ankles of its owner. All the sadness usually associated with dusk, the end of the day, the finish, the frustration, is in those shadows.

You feel the emotional drag yourself and the scene leaves you limp.

That's just one small trick in phychological photography.

Here is another.

This one has to do with the Hilton home. We all know that stage sets came first, motion picture sets afterwards. Too often the pictures followed the stage tradition blindly, doing things the way they had to be done on the stage, with the obvious limitations of the stage, limitations that frequently did not apply to motion pictures.

Thus, on a stage, a room is not a room, it is three walls of a room with the fourth wall left off, so that several hundred people can look in. Thus, on the stage, it is impossible to create the effect of having the observer in the room. The best he can hope for is to get the effect of looking into a room.

When he planned "Since You Went Away," David O. Selznick decided that much of the effect depended upon taking the audience into the Hilton home. So he built the home, on two adjoining stages. He built a house so substantial and permanent in appearance that you are tempted to move right in when you see it. The fireplaces are practical, so is the plumbing.

But that isn't all.

As the action proceeds, the camera is placed, not where it is most convenient to place a camera, but where the maximum emotional effect can be created. And one of the prime emotional effects is the effect that you are *in this house.* You aren't *looking into it* as you would on a stage. *You are in it.*

Thus when Monty Woolley and Shirley Temple play a comic scene with a reluctant turtle, you are in the tiny bathroom. The scene is hilarious—as are many of the scenes between this pair in the picture—and they gain much of their power from the effect mentioned. Any cinematographer will appreciate readily the difficulties involved in getting the camera into some of the cramped spaces of the Hilton home, but the results are well worth it.

Additional sense of reality derives from a lense treatment by which Cortez is creating the illusion of a third dimension on the screen. Although lay observers are not fully aware of it, frequently when one person is in focus on a screen, others in the same scene are not sharply in focus, if they are standing in different planes of depth from the camera.

In "Since You Went Away," by artful use of lighting and by unusual lense treatment, Cortez overcomes this difficulty, with a resultant effect of depth on the screen.

It is no secret in the trade by now that Selznick seems well on his way over the $2,000,000 mark on this picture. Many people have been unable to understand the reason for the great expense involved in his latest picture, but this article will go a long way toward explaining it, to technical minds, at least. There are no mobs of extras here to compare with the capture of Atlanta (although there are some big scenes, notably the hangar dance sequence). Moreover, "Since You Went Away" did not start out to be as detailed a story as "Gone with the Wind."

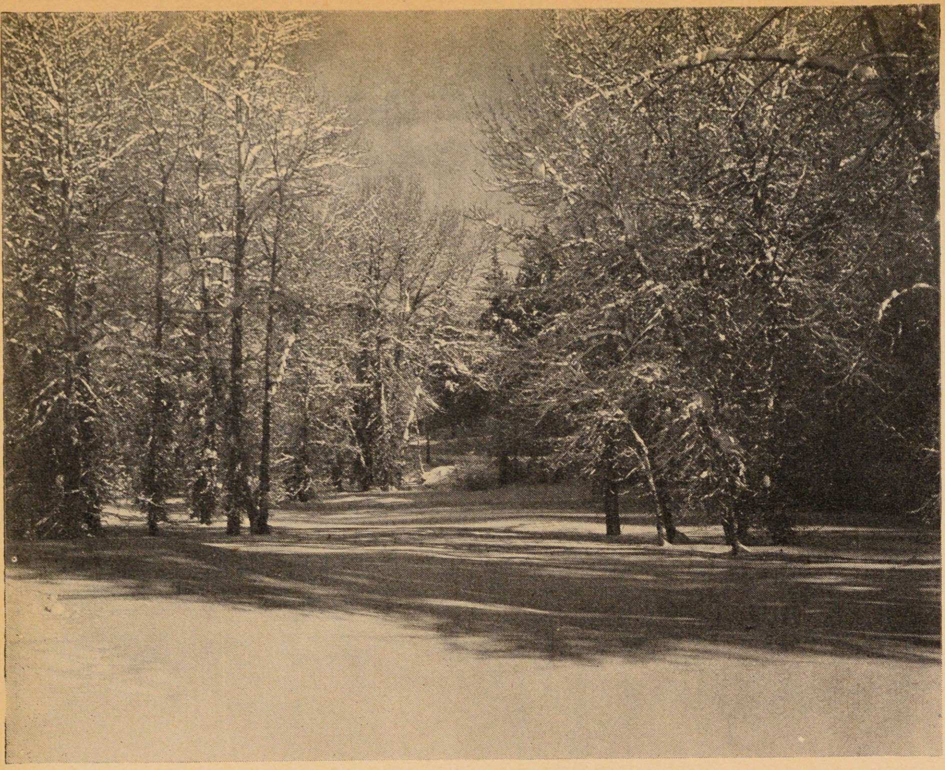
What is making it expensive is the striving for perfection, particularly perfection in the delineation of moods. Effects that would seem trifling to many producers are being nurtured by Selznick as though they were rare, priceless flowers. Each nuance achieves its full beauty and power.

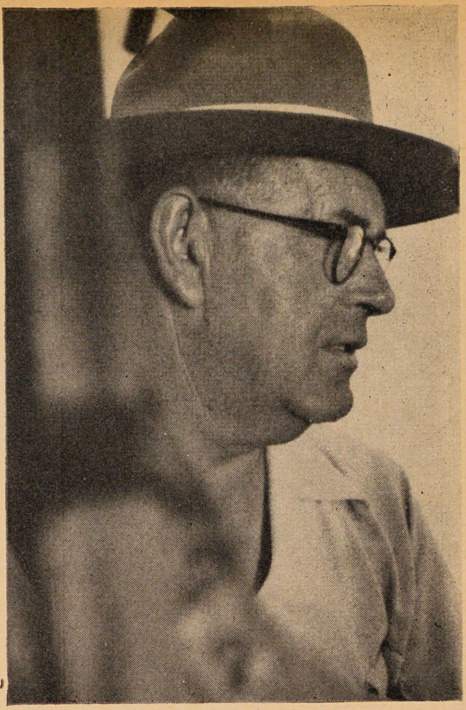
As for Stanley Cortez, naturally he is in the cinematographer's heaven. For once in his life, he is being permitted full play for an imagination of great range. His work on "The Magnificent Ambersons" made cinematographic history.

"It was good," says Stanley, "and I'm proud of my part in making it and grateful for the opportunities that were offered to me at that time to try some of these ideas experimentally. But this time I am working with a man whose imagination and courage seem to know no bounds. Believe me when I say that in Since You Went Away, the motion picture camera will take its place as one of the greatest instruments for artistic creations ever invented by man."

Kirston to Film Center

JOHN K. Kirston, formerly with Paramount Pictures and Walter Wanger Productions, has joined The Princeton Film Center, Princeton, New Jersey, as production manager. Kirston has had extensive experience in the production of training films, having completed a lengthy production assignment with the U. S. Army Signal Corps, as civilian motion picture expert, prior to joining the Film Center.





Above, Jack Smith, A.S.C. At left, result of 3N5 filter. Shadows not blocked. Detail clear. Glare of sunlight on snow held back. Sky tones almost evenly with shadows.

Snow Photography

By ALVIN WYCKOFF, D. Sc., A. S. C.

As Related By

JACK SMITH, A. S. C.

IT HAD been one of those hot days, sultry and sticky, that commenced with the slow rising of a coppery sun in the morning. What air circulated around us during the day floated in off the Gulf to settle around rank vegetation in the back country. With the scantiest clothing we could wear we had panted and puffed around all day with it sticking to us like an uncomfortable plaster. Now, we sat out in front of our headquarters tent at the far edge of the airfield watching that coppery sun crawl down under the horizon of the Gulf, fanning ourselves into thinking the action induced a cooling effect when the conversation turned to the subject of "Snow."

Jack Smith had been up in the air most of the day — "twenty thousand feet," he said, "where it was really cool" —and now, as he wiped his face and neck dry he remarked, "I could be cooler in Africa than down here on this Florida Coast of the Gulf of Mexico."

Somebody snickered and exclaimed, "Africa!—don't be silly—it's hot in Africa—any place!"

"Well," Jack replied as he wiped away at the gathering perspiration, "I've been on location in Africa where it was as cold as any location here at home—where there was snow, deep snow, plenty of it," and then he related.

Comparing locations at home and abroad reminds me of some of my experiences in the snow, any of them as cold and shivery as the atmosphere twenty thousand feet up. One of them I call to mind was in Africa.

Incredulously the group stopped fanning and looked at him. What was the use? Africa! It was too hot to argue.

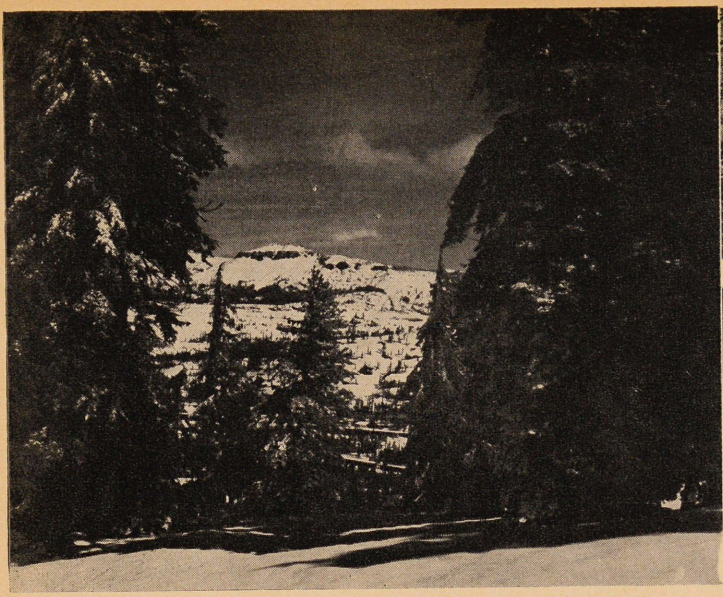
"It's a fact," he continued, "I know it sounds rather odd to associate snow with Africa but nevertheless there is considerable snow up in the Kabyle Mountains.

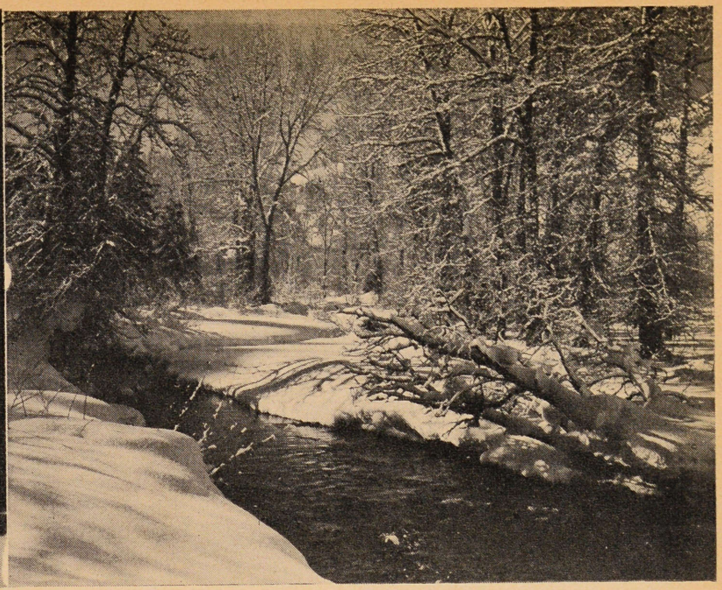
Frequently I find myself comparing the great differences in personal comfort and the mode of travel to and from locations here in our own country as compared to the discomforts and crude methods I have had to contend with in foreign travel. Africa has only meager transportation facilities for expedition purposes. In fact they were limited to such an extent that my personal mode of travel in the Kabyle Mountains was by the slow and stubborn acceleration of a streamlined African donkey, belly deep in snow. My camera equipment was transported on the heads of natives mushing slowly along knee deep in snow without the protective covering of boots or shoes—just a piece of automobile casing cut to the shape of a sandal and strapped on their feet. At that, they seemed quite happy and contented.

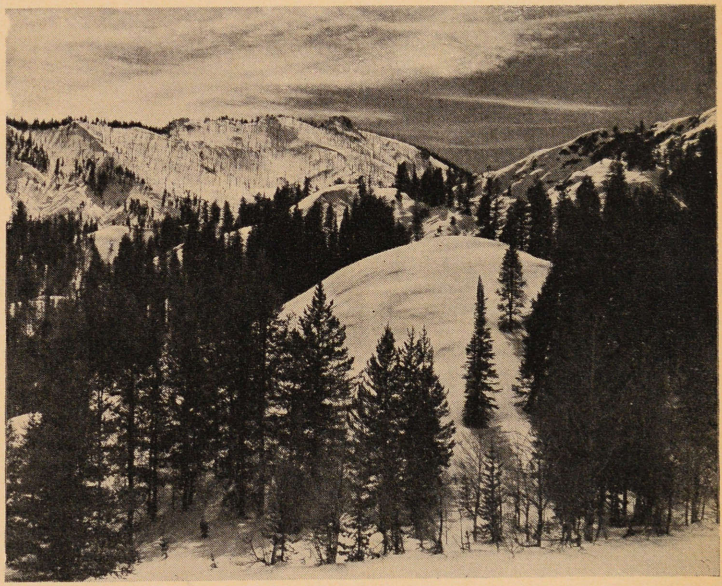
Another snow location where I encountered plenty of trouble was in central China enroute to Thibet crossing the famous Lu Pan San Pass at an altitude of 17,000 feet. At one crossing of a rushing stream of ice-cold water it required the combined force and efforts of the motor plus forty coolies pulling and pushing, to the accompaniment of shrieking shouts of blasphemy, before we could get the trucks across, and there were ten of them in the caravan, and then a route cut through snow from seven to ten feet deep before the caravan could arrive at the crest of the pass. The deep snow, the high altitude and practically no road other than a trail that had been worn by countless camel trains consumed a full day and into the night getting up over the summit. Tough going? Yes! But such are the difficulties to be overcome following trail-roads to location in that part of the world.

What a contrast to the facilities enjoyed in traveling to locations here at home. For instance, compare the last two winters I traveled back and forth to locations in Sun Valley, Idaho, where I enjoyed just about every comforting luxury any traveler could wish for.

Everyone knows, and those who don't have read about it, the luxurious winter comforts of Sun Valley Lodge. When we







Upper left, result of No. 55 green filter. Sky overcorrected. Upper right, No. 21 Monobrom filter used with pleasing results of dark water, soft snow detail. Right, used No. 21 Monobrom filter, enhancing murky sky and giving transparent shadows.

started out in the morning we loaded into heated motor cars. Even the transporting trucks had heated cabs for the drivers. No mushing, no shivering porters, no barefooted transport carriers, no noise, no straining of muscle, cussing and yelling; just lovely smooth going in grand easy comfort.

Our location was at Galena Mountain, a place that crystallized in a temperature hovering around the 40 below zero mark most of the time of day, and at night . . . ? Oh, boy! The mercury got stiff! But 40 below is plenty cold for anyone to work in trying to get snow scenes. We had to be particularly careful with our cameras and accessory equipment. Before going into this location the cameras had to be drained of every drop of oil, otherwise the oil would have congealed and adding to the load on the motor, slowed up the normal speed of 24 frames per second.

Another important factor that had to be considered was the use of filters; the intense cold caused the jellies, inside filters, to become very brittle necessitating utmost care in their handling.

Incidently, filters are an important factor in the accomplishment of effective snow photography. At high altitudes the sky is reflected as a deep blue through the crystal-clear thin air and without careful judgment the use of filters will have a tendency to cause an overcorrection as compared to the landscape and ruin the realism of the scene. Generally, I use a 3N5 filter, a combination of the No. 1 plus a 50 N. D. factor 4. With a general overall light standing constant at a Weston reading of around 25 little effort is required to compute the correct F value.

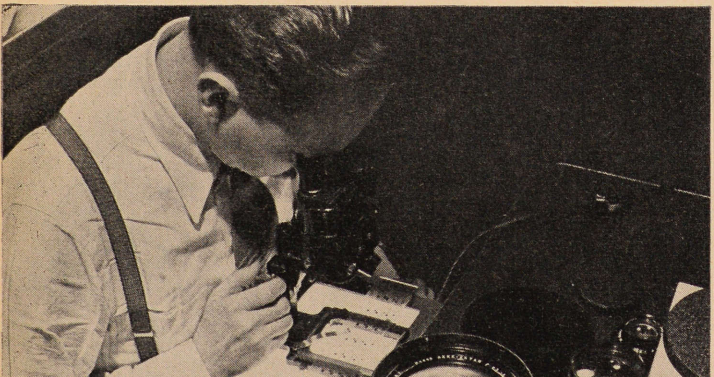
If at times the sky appears murky it might be advisable to use a Monobrom filter; be sure to compute the correct factor for the film it is to be used with. Since this filter is less dense than the 3N5 it is possible to cut the shutter to about 90 degrees rather than stop the diaphragm too far.

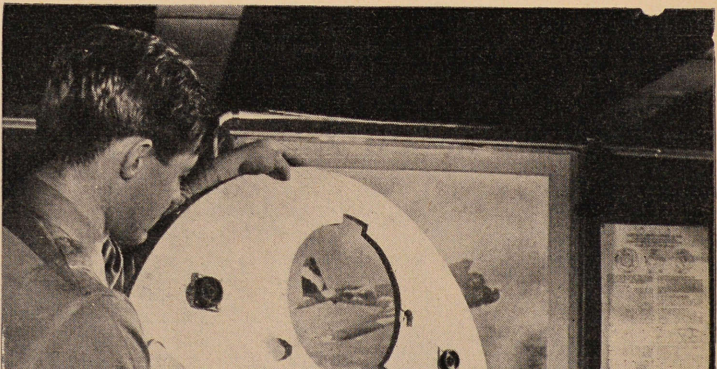
There are many other conditions that arise from time to time that will require filters of other combinations. One particular scene recently made I recall. It was a movement of Ski troops traveling over the snow of the open mountain side and disappearing into dense wooded areas.

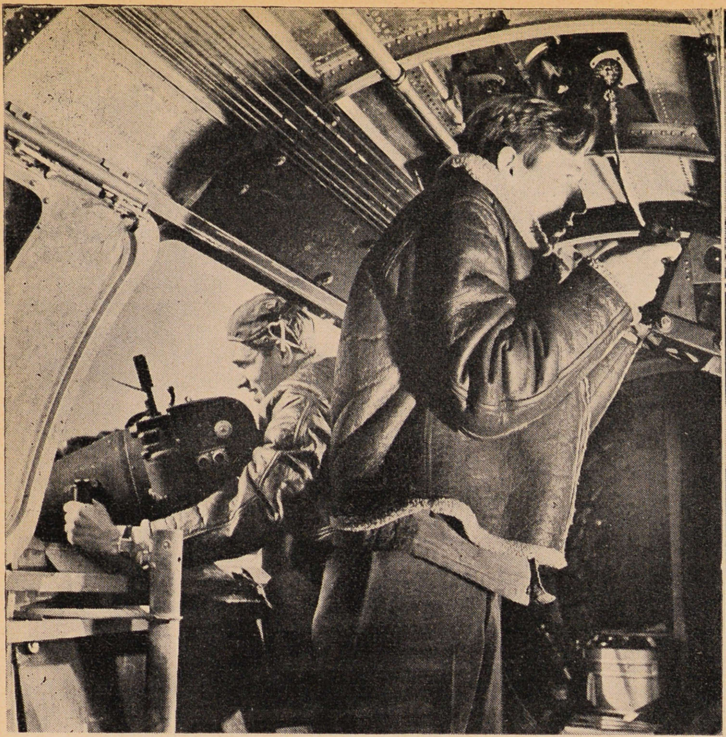
Ski troops wear reversible outer clothing. White outside when traveling through snow country to eliminate detection from the air, changing to olive-drab when approaching and entering wooded areas, blending with the very dark greens of the mountain forests and dark shadows on the snow. Here the condition becomes one of careful separation. Naturally, the troops are the essential factor of picture interest backed up by the scenery around them. It is my practice in such a condition to use a green filter No. 56, factor 3. This procedure calls for careful, experienced, computing to arrive at the correct exposure for the dark greens and shadows of the overall brilliances from being influenced by the considerable glare and reflection of the snow that seems to dominate the area to prevent under exposure. The olive-drab of the uniforms is a much lighter shade of green than the green of the foliage and shadows that mingle with the troops, therefore, the green No. 56 filter lightens the olive-drab uniforms, separating the troops from the darker foliage and shadows revealing action in excellent detail. With characters garbed in such colors that blend into their surroundings it is better to avoid the use of a filter of the red end of the spectrum. Such a filter would entirely block and dull the action of the troops. The effect would be a blending of the troops with the foliage and shadows with an increasing contrast of the snow. The effect of a brilliant scene would be destroyed. In using the green No. 56 filter in snow photography better results will be obtained by avoiding the sky as much as possible, otherwise the scene will be depressed by a sky out of all normal relation to the scene.

Pola Screens must be used with caution too. There have been occasions when I have had to overcome the terrific glare of back-light resting on a huge mound of snow between me and the

(Continued on Page 450)







AERIAL PHOTOGRAPHY FIRST STEP TO BATTLE

A PLANE lands at an American air base in North Africa—a Corporal runs out, takes a package from a crew member and immediately scurries to a nearby shelter—in a few minutes he emerges with most precious military information, battle zone pictures, developed and printed.

"Pictures for the General," shouts the Corporal as he hands the package to a waiting messenger.

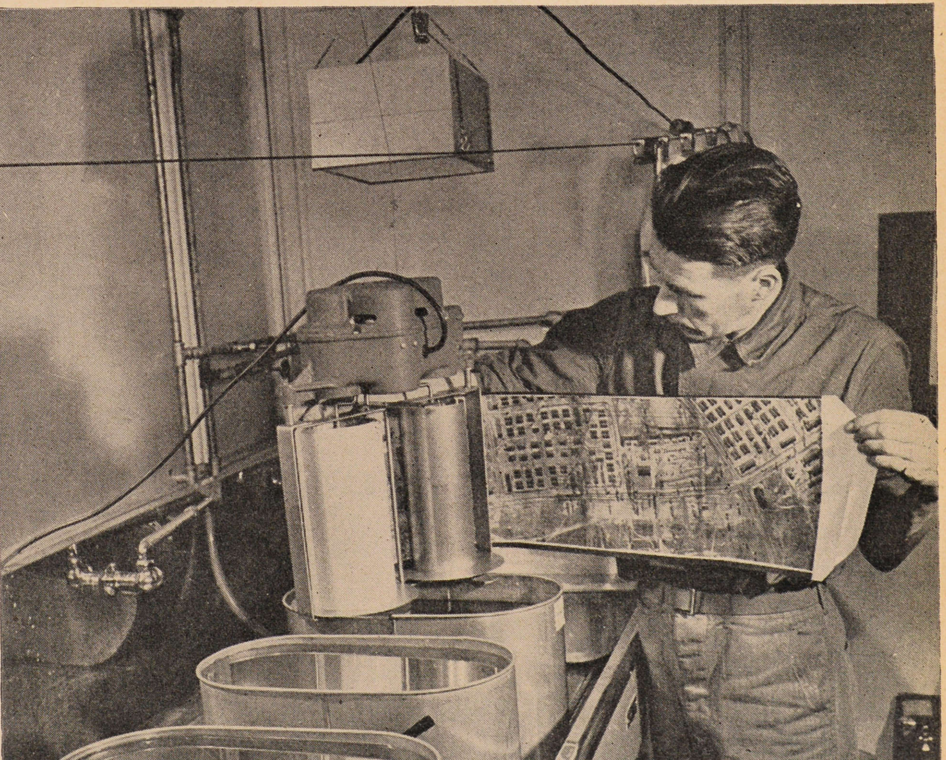
That's the early stage of most American drives where strategy is changed rapidly, where troops, planes and mechanized units make no major moves without first photographing the potential battle area, the placement and movement of the enemy. Prelude to attack on all battlefronts is a complete review of these aerial photographs by the strategy staff.

The prominent role of aerial photography in the present conflict has brought about increased interest in the development of photographic equipment, including cameras, developing processes, and printing methods.

Center for development of Army Air Forces aerial photographic equipment is the Photographic Laboratory of the Material Command, Wright Field, Ohio. Here, the increasing war needs for greater quantities of specialized photographic equipment are being reflected in developments which may revolutionize the field of photography.

One of the outstanding developments to aerial photography by the Photo Lab is the continuous strip printer. By this new photographic printing mechanism it is possible to turn out 1,000 prints per hour. This development was made in response to increasing demands from battle areas for quick aerial reconnaissance prints.

(Continued on Page 450)



Aces of the Camera

John Boyle

By W. G. Campbell Bosco

BENEDICT Bogeaus, as owner of General Service Studios, has had a better opportunity than most people to study at first hand the complex business of picture making. Through his portals have passed some of the most outstanding talents in Hollywood and some of the screen's biggest hits were created on his lot.

It is not surprising then that Mr. Bogeaus, having decided to become a producer in his own right, should have assembled what looks like a sure-fire combination for his initial effort. The story, "Bridge of San Luis Rey," a tale of romance and high adventure in 18th century Peru; a stellar cast which includes Akim Tamiroff, Lynn Bari, Louis Calhearn, Francis Lederer, Nazimova, etc.; Director Rowland E. Lee, and Ace Cameraman John W. Boyle, A.S.C.

It is a tribute to add to a distinguished career, as well as an indication of his own sagacity, that Mr. Bogeaus should choose to trust his maiden effort to the camera of John Boyle. Perhaps he took the cue from Samuel Bronston who made his bow as a producer with the recently completed "Jack London" on which Mr. Boyle also officiated. A producer needs to have a lot of confidence in his cameraman. John Boyle inspires confidence. John Boyle's career as a cameraman started in his home town of New Orleans where he owned and operated a newsreel known as the "Item Animated Weekly" in connection with the New Orleans Item. That was in 1913.

"I was everything to that newsreel, besides cameraman," John told us. "The newspaper would tip me off about what was happening and going to happen, and I would dash off and shoot it. Then I came back and did the lab work, shot titles and edited. And," he added with pardonable pride, "all the news up to Sunday evening was on the screen by Monday morning. Thomas Dixon brought me to California in 1915. He was the man who, needing a place to work, went out into the country and bought a lemon grove for ten thousand dollars and built what is now the Fox Studios at Sunset and Western."

Working for Fox, John Boyle trained his lens on Theda Bara and William Farnum and helped make cinematic history. It was during the filming of the "Queen of Sheba," starring Betty Blythe, that Boyle became famous for his chariot races and which led eventually to his assignment to film "Ben Hur."

It was during the filming of these chariot races that Boyle conceived the idea of mounting a Bell and Howell camera over an Akeley. It was a great idea as it turned out, not only providing insurance, and eliminating a lot of retakes by making it possible for the cameraman to get both long shots and closeups at the same time, but it permitted him from his position in the center of the oval track to follow the entire 360 ft. course of the action without having his view cut off by another camera.

Hollywood was an exciting place in those days. An infant industry was becoming a lusty adolescent. About its name was being woven the legend of glamor and on its streets walked the great names of the entertainment world. But it wasn't exciting enough for John Boyle. He took his camera and joined the first production unit to go to the South Seas. That was in 1921.

They discovered Tahiti cinematically speaking anyway, on that trip and presented it to an admiring world. Which, we suppose, must have had some bearing on the long list of South Sea sagas that have followed.

Perhaps it was that trip that influenced Boyle's amazing career. There seemed to him to be so much of the world and what he had seen of it intrigued him immensely. So he decided to see all of it that opportunity offered.

The next year he went out to the Far East spending seven months in the jungles of the Dutch East Indies making an adventure film among the cannibals. Upon his return Sam Goldwyn sent him to Italy for a year as chief cameraman on "Ben Hur."

Returning from Italy he spent the

(Continued on Page 452)

Making Christmas Movies

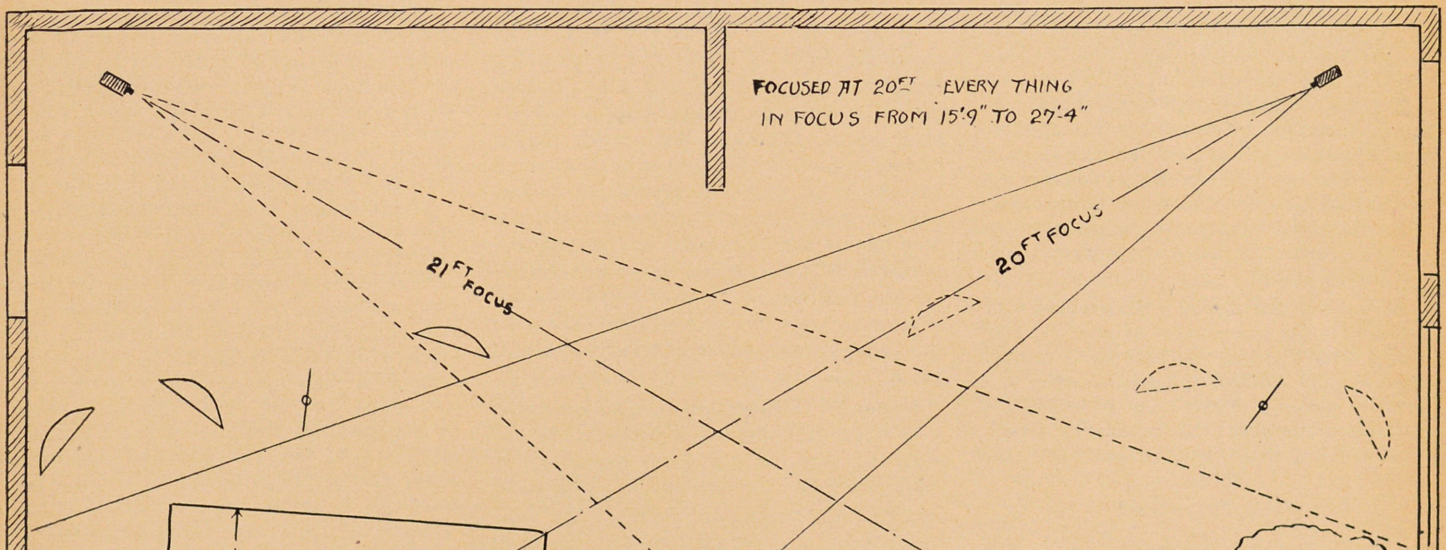
By GLENN R. KERSHNER, A. S. C.

CHRISTMAS, the one great universal day to you and me and to the millions on this big world is but a few days away, and I am wondering if you are planning as much fun at your house as we are at ours. When the holiday is over are you going to have movies and snap shots—PHOTOGRAPHIC RECORDS, of the day's events, of the family, the tree, lights, decorations and above all, the youngsters? Around them Christmas revolves. Their smiles are worth millions as they rush to the tree, catching up packages and gifts, flinging ribbons and wrapping paper—then the hugs and kisses.

Strange how years can slip by before we realize it . . . children can grow up to become men and women . . . get married and bring their children home . . . many will have gone over seas . . . then these photographic records, if you have made them on Christmas day, will become your most prized possessions. They have at our house.

When a youngster I always wondered why Dad and Mother and the grandparents sat around talking and trying to remind each other of things that happened years before. Now I can understand. They had no cameras, they could only talk of memories. Many times I have watched them get out the old family album of faded humorously posed photos, each made under such crude conditions. The folks had to leave the plow standing idle or lay aside the ax and travel many miles in an old wagon or

(Continued on Page 452)


FOCUSED AT 20FT EVERY THING IN FOCUS FROM 15'9" TO 27'4"
21 FT FOCUS
20 FT FOCUS
TABLE 7 FT.
4 FT.
TREE
G.R.K.
25 M.M. LENSE - 16 M.M. CAMERA
DARK THIN CURTAINS ON WINDOWS IN SCENE
SCALE 1/2" TO 1 FOOT

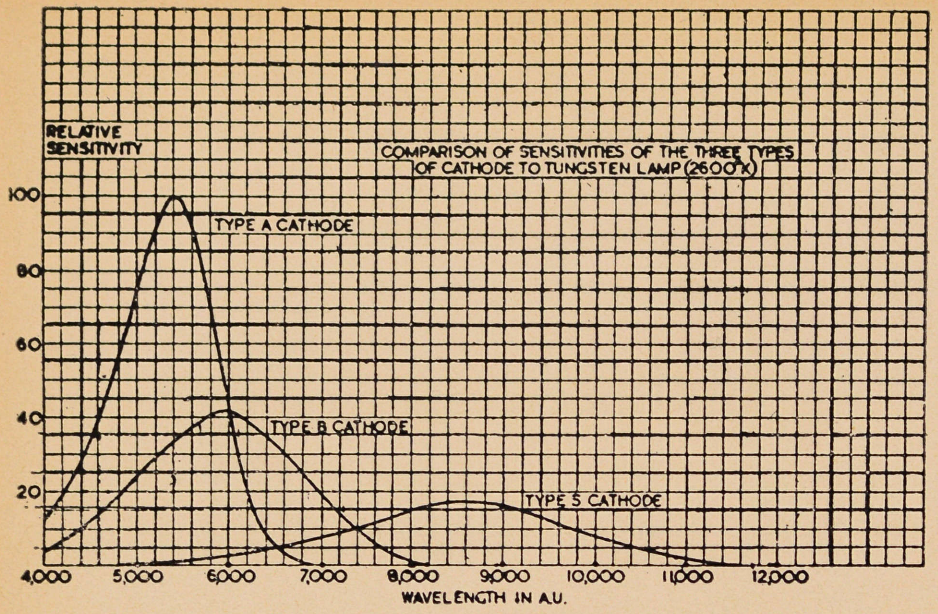


Fig. 1. Colour Sensitivity of new type Photo-Cells.

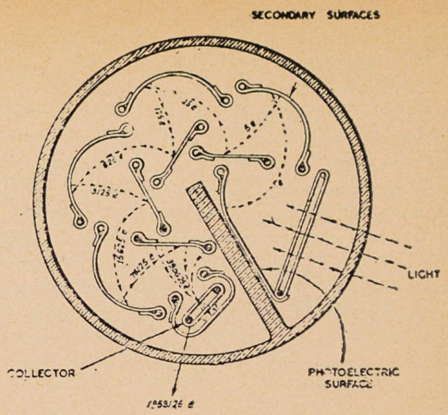


Fig. 2. RCA Electron Multiplier.

ELECTRONIC TUBES

By T. M. C. LANCE, A.M.I.R.E*

ONE of the outcomes of this war, and particularly as a result of our close association with modern American methods, will undoubtedly be the tremendous stimulus to the application of electronic art to ordinary industry and ways of life, to a degree not dreamt of by even the most imaginative engineer—and electronic engineers are on the whole the most imaginative and optimistic crowd.

A rough definition of an electronic tube is a device for the control of energy, generally with the expenditure of a minute amount of control power. Hence the British name of Valve. In addition, the controlled electrical energy can be directly converted into light output from the tube.

The Thyratron

The most astonishing electronic tube meeting this definition is the Thyratron or gas control tube, in some models of which powers of several hundreds of horsepower are controlled with ease and smoothness by the expenditure of only a few watts of energy.

Remote control and gradation of lighting in theatre installations has been brought to a fine art by the use of Thyratron circuits, which are particularly advantageous as all the controls can be brought to one point, and the power regulation is effected without the loss of power as heat in resistances.

In general the Thyratron is a three electrode valve in which gas or mercury vapor has been introduced after pumping, the characteristics being considerably altered thereby. Very much higher currents will pass in the tube than in a vacuum tube, and the current will either pass at full strength or not at all, according to the potential on the control electrode. The current is only limited by the impedance of the output circuit or the cathode emission and can be of the order of amperes for even very small tubes.

Under D. C. conditions the tube acts as a switch. If a negative potential is applied to the control grid, emission of electrons from the cathode is suppressed and nothing happens, but when the control potential is reduced so that the tube starts conducting the current instantaneously jumps to its maximum value and nothing short of breaking the circuit can stop the current. This effect is used in alarm circuits with thousands of applications.

With A. C. conditions the tube automatically extinguishes on each cycle, and if negative D. C. is applied to the control electrode conduction will take place whenever the proper relative values of grid and anode voltage occur. Conduction takes place for all or part of the half-cycle as desired by slight alteration of the control potential. The point is, that the amount of current, and hence the energy handled, is not dependent on the input control power but solely on a potential.

I can picture the control bridge of a large electrically driven ship of say 50,000 H. P., in which the captain himself handles the whole power control from any one of a number of small control boxes, and in addition steers the vessel by altering the ratio of power supplied to the port or starboard motors by turning small radio nobs, one for each motor.

Photo-electric Cells

Turning now from the high-powered electronic tubes to the other end of the scale, we have the photo-electric cell in which the current output never exceeds a few millionth of an ampere, and where the controlling energy is light.

I cannot visualize the time when we shall derive our electrical power by the direct conversion of light energy through the medium of photo-electric cells, although we may utilize the solar radiation to heat our boilers under the control of photo-electric focusing devices to keep the installation directed at the sun.

There seems very little possibility of increasing by a large factor the conversion factor of light energy into current of the photo-electric cell, which is about 20% efficiency, but considerable development has recently been made to the sensitivity of the cells to various color ranges of the incident light, to which I will shortly refer. This efficiency refers to the quantum yield which for a caesium cell is ½%, but for the new antimony cells, at the optimum spectral illumination, this is estimated at 20%.

Most of you are familiar with the caesium photo-cell which has for a long time been used for the reproduction of sound on film. We have all been rather contemptuous of the selenium barrier type cells, which although extremely useful in photometry and exposure meters have, in spite of several attempts, not proved really satisfactory for sound film reproduction on account of the poor frequency characteristic. The manufacturing technique of these cells has recently been modified so that small cells can now be made having very reduced capacities, and it is reported that these are being made in the U. S. A. in thousands since the outbreak of the war.

---

* Cinema Television, Ltd., England.

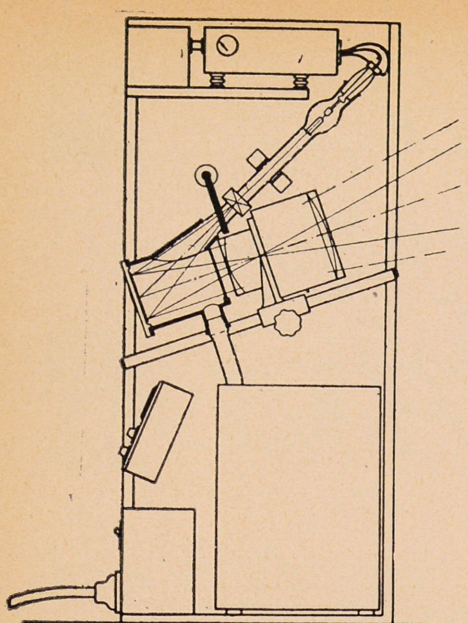


Fig. 3. Baird Projection type Cathode Ray Tube.

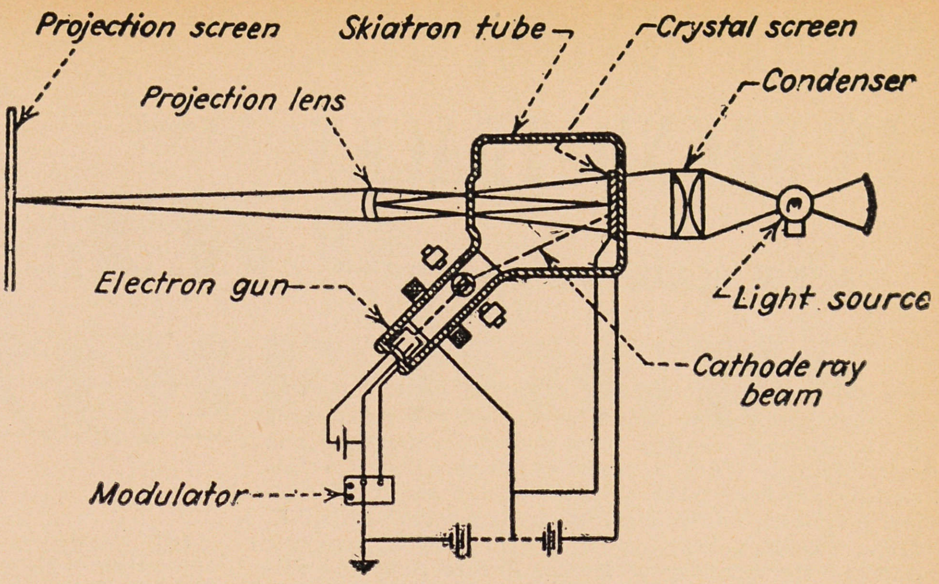


Fig. 4. Principle of Skiatron.

The size found satisfactory is 6mm. x 4mm. There are many obvious advantages in the use of this type cell, such as the low impedence of its output which enables long lines to be connected directly to the cell without appreciable loss of characteristic or without the pick up of interference. The immediate future may see the development of sound equipment without a head amplifier on the projector.

Color Sensitivity

Returning again to the vacuum types of cells: we have now produced cells of three different types with respect to spectral or color sensitivity. These differ in the preparation of the light-sensitive cathodes in an interesting manner shown in Fig. 1. It will be seen that for the light of the tungsten lamp the new surfaces, types A and B give considerably increased outputs over the old caesium cell marked S on the diagram, in spite of the fact that the peak is in an unfavorable position with regard to the color output of the lamp.

For daylight application the new A type cells are 10 to 20 times as sensitive as the S because the peak emission of the sun is much nearer the blue end of the spectrum than that of an incandescent lamp. On account of this fact alone these cells have many important war time applications.

The B type approximates very closely to the response of the eye and can be used for photometry of colored light sources and for measurements of the physiological effect of various illuminations on the eye.

Secondary Multiplication

The sensitivity of the photo-cell can be increased by what I regard as dodges, such as gas filling or secondary multiplication of the photo-electric current. We had a good exposition of this latter process by Dr. Van den Bosch at a recent B.K.S. meeting, and the Baird Television Company have made and described multiplier photo-cells for television studio work which have been of great value for color discrimination purposes. More recently they have been used in applications where very feeble illuminations have to be detected. These tubes employed the principle of having several stages of secondary multiplications in one glass vessel, the stages consisting of permeable grids on which the electrons impinge, the increased number of secondary electrons being attracted through the holes in the grid in a manner similar to that described by Dr. Van den Bosch.

The RCA have recently produced a new design of multiplier cell which is shown in Fig. 2. Here the electrons are directed by carefully shaped plates at different potentials so that the streams pass from stage to stage in ever increasing concentrations. These cells are very stable in operation and appear to be mass produced. This design of tube is of particular interest to electronic engineers since the shape of the plates, which would be quite impossible to calculate, was determined experimentally in large scale models in electrolytic troughs.

Thermionic Valves

This method of basing electrode designs on large scale models has been used in the production of beam power valves.

In these the emission of electrons from the cathode, instead of being a random cloud, is directed into definite beams between the control grids and the anode. Although the mutual conductance or slope, stated in terms of milliamperes per volt, is not increased, the efficiency of power valves has been considerably improved by these new designs. The net effect has been to reduce the tail of the characteristics, thereby enabling a longer load line or power output to be used for a given power dissipation in the valve.

Very little has been disclosed recently on the trend of valve design and I find myself unable to indicate future trends.

The need for high slope amplifying valves has always been present, particularly for television receivers, and there are three general lines of possible development. These are: The space charge tube, which is very critical as regards voltage setting on the electrodes and is variable over age, needing constant adjustment. The conventional tetrode design with extremely small spacing of electrodes and close wound grids, which presents considerable manufacturing difficulties and is usually very microphonic; and the secondary emission tube such as the EE.50 where the slope of the valve section of the tube is increased by the action of a secondary emitting surface probably by a factor of 3 to 5 times.

Cathode Ray Tubes

The last class of energy convertors I wish to refer to is the cathode ray tube, where electrical energy is converted directly and instantaneously into light.

Unfortunately the dictates of war closed the development of television and in this country terminated the very interesting progress being made with high power cathode ray tubes for kinema television.

The Baird Company had operated in the laboratory a glass-metal projection tube which was continuously evacuated in operation, in which an illumination was obtained giving a brightness of 5 foot candles on a screen 15 x 20 feet. This tube produced an image by the electron bombardment of a fluorescent screen and research was progressing along lines of improving the fluorescent powder to control its color and increase the brightness over several hundred hour's life. The images produced on the fluorescent screen were directly projected onto the screen by lenses of large aperture.

The Diavisor Principle

It was always felt that another line of attack for kinema projected pictures would be by means of a light control in which the electronic device acted as a variable medium interposed in a beam of light, in the same way as the slide or

(Continued on Page 455)

RECENT DEVELOPMENTS IN SOUND-TRACKS

By E. M. HONAN* and C. R. KEITH**

THE considerable number of types of sound-tracks that have come into use in the past few years make it desirable to agree upon standard dimensions and nomenclature in order to avoid confusion. Steps in this direction have been taken with the publication of "Dimensional Standards for Motion Picture Apparatus" (S.M.P.E. Journal, November, 1934), and in a Bulletin of the Research Council of the Academy of Motion Picture Arts and Sciences, "Standard Nomenclature for Release Print Sound-Tracks" (November, 1937).

However, in the several years since the publication of these standards, the number of types of sound-tracks in common use has considerably increased. It is, therefore, the purpose of this paper to publish illustrations and brief descriptions of the most commonly used tracks and also some experimental tracks in order that suitable dimensions and nomenclature may be agreed upon and adopted as standards.

The accompanying illustrations show twenty types of sound-tracks and combinations of tracks used on 35mm. film. The illustrations are grouped according to the type of track and without regard to the relative importance or extent of use. The description of each track is intended primarily for identification, since a discussion of the relative merits of the various types would require a very extensive paper. However, references are given to previous publications where more complete descriptions of the tracks may be found. All the illustrations show positive prints.

The first group of tracks are of 100-mil variable-density type. It will be noted that "100-mil" and "200-mil" refer to the width of film allotted to one or more tracks. Descriptions of the "squeeze-track" and "push-pull" features will be found in the references associated with tracks of these types. The use of noise-reduction in variable-density recording may be observed on the film as an increase in average density in those portions having low modulation, although this is not apparent in the small sections shown in the accompanying illustrations.

(a) Single Variable-Density (100-mil).—This is a standard release track and is the same as Fig. 1 of the Academy Bulletin.[1,2,3]

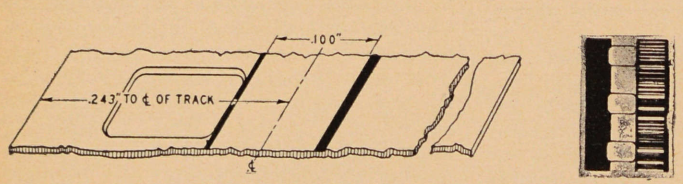


Fig. A

(b) Single Variable-Density Squeeze.—This is the same as track *a* except that the width is varied to increase the volume range. It is the same as Fig. 2 of the Academy Bulletin. The width may be varied by bringing the two outer margins closer together, as shown; by keeping the outer margins fixed and inserting a black centerline of varying width, or by a combination of the two previous methods. Since the maximum track width is 76 mils, the amount of squeeze illustrated represents a reduction of sound level of only about 3 or 4 db.[4,5]

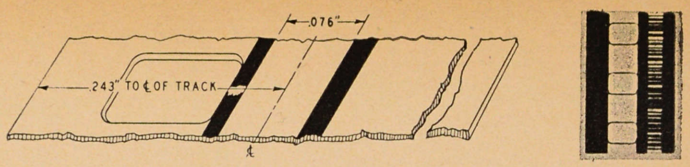


Fig. B

(c) Push-Pull Variable Density.—The two tracks are similar to *a* but are each 47.5 mils wide and 180° out of phase. This is the same as figure 7 of the Academy Bulletin.[6]

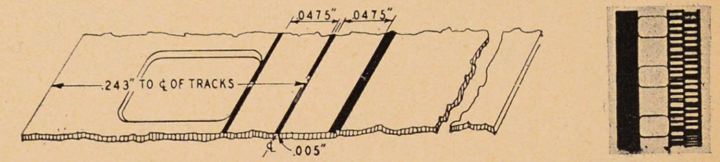


Fig. C

(d) Push-Pull Variable-Density Squeeze.—This is the application of squeeze-track methods to the push-pull track, *c.* It is the same as Fig. 8 of the Academy Bulletin.[5]

The next group are of the 100-mil variable-area type. Each is "Class A" unless otherwise noted. (See track *h.*)

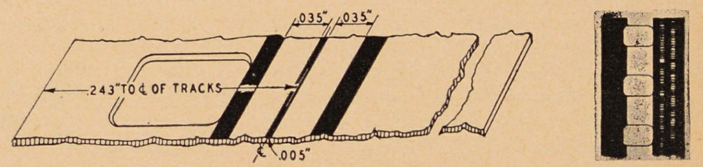


Fig. D

(e) Unilateral Variable-Area.—Noise-reduction is indicated by the change in width of the right-hand black margin. It is the same as Fig. 4 of the Academy Bulletin.[7,8,9,10,11]

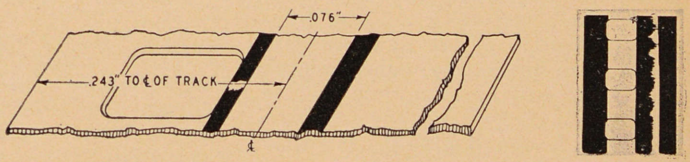


Fig. E

(f) Bilateral Variable-Area.—Noise-reduction is indicated by the change in average width of the clear center portion of the track. It is the same as Fig. 5 of the Academy Bulletin.[11,12]

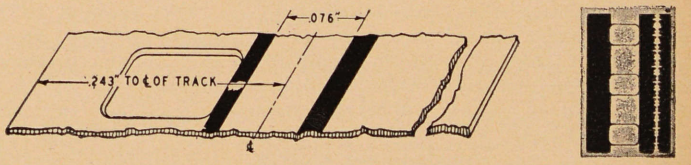


Fig. F

(g) Duplex-Variable-Area.—Noise-reduction in this case is indicated by a variation of the distance between the two black borders. It is the same as Fig. 6 of the Academy Bulletin.[13]

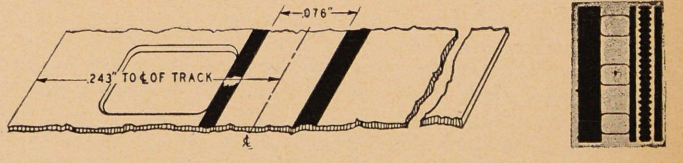


Fig. G

(Continued on Page 442)

TWO ALL-TIME HIGHS

WITH millions of feet required by our Armed Forces for training and other military purposes, the total production of Eastman motion picture films has pushed into new high ground. And the all-around quality of this huge output has never been excelled. Eastman Kodak Company, Rochester, N. Y.

J. E. BRULATOUR, INC., *Distributors*
Fort Lee Chicago Hollywood

EASTMAN FILMS

Recent Developments In Sound Tracks

(Continued from Page 440)

(h) Push-Pull Variable-Area, Class A.—The term "Class A" means that each half of the push-pull record is complete and may be separately reproduced with comparatively little distortion. In the example shown each half is a unilateral track and the out-of-phase relation is shown by the fact that a dark projection on one side is always exactly opposite a white indentation on the other side. The same effect is obtained if each half of the push-pull track is recorded as a bilateral variable-area track. Noise-reduction is indicated by a variation in the distance between the two black borders. This is the same as Fig. 9 of the Academy Bulletin.[13]

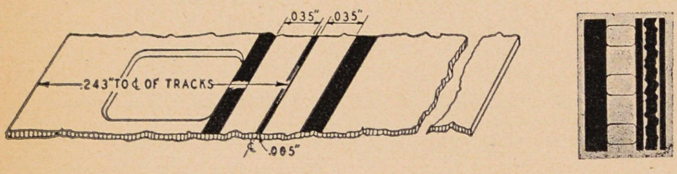


Fig. H

(i) Push-Pull Variable-Area, Class B.—In this case one-half of the push-pull record represents only the positive half of the original wave and the other the negative half, so that the two halves must be reproduced with equal amplitudes and in opposite phase in order to avoid distortion. Since the print is opaque except where modulated, the usual bias type of noise-reduction is not required. The individual tracks may be bilateral, as shown in the illustration, or they may be unilateral.[11,12,13]

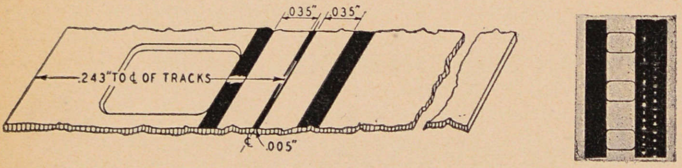


Fig. I

(j) Push-Pull Variable-Area, Class A-B.—In this type of track low modulation is recorded as Class A (each track records both halves of the original wave) but as the modulation is increased it is changed to Class B by recording the additional amplitude with the positive waves on one track and the negative waves on the other. Noise-reduction is not used in this type of sound-track.[14]

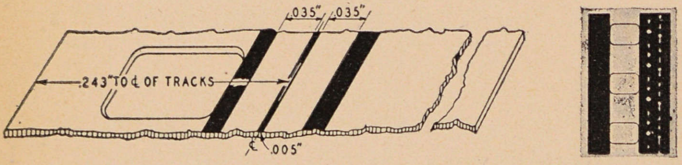


Fig. J

The next group of tracks occupy a width of 200 mils and are consequently not used on present standard combined sound and picture prints.

(k) 200-Mil Variable-Density.—This is the push-pull combination of two 100-mil variable-density tracks.[6]

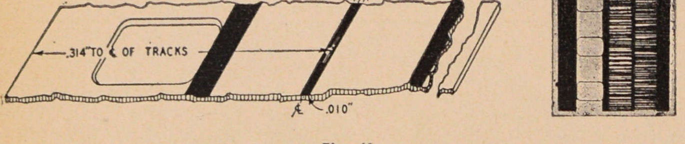


Fig. K

(l) 200-Mil Variable-Area Center Shutter.—This consists of two 100-mil bilateral Class A variable-area tracks in push-pull relation. Noise-reduction is accomplished by blocking out a portion in the center of each track.[15]

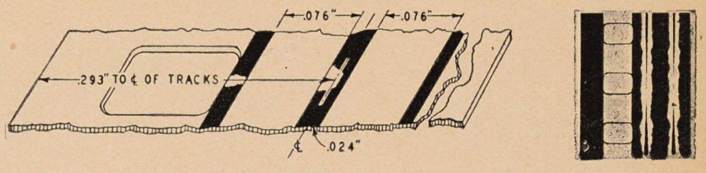


Fig. L

Each of the remaining combinations of tracks includes a "control-track" together with one or more sound-tracks. The control-track is generally used to vary the sound level in the reproducing system in such a manner as to increase the volume range or the signal-to-noise ratio or both. It may be either amplitude- or frequency-modulated, and may be distinguished in the illustrations by its resemblance to a constant-frequency record. The word "comprex" refers to a system in which automatic volume compression and expansion are used.

(m) 100-Mil Variable-Density Comprex.—Both sound and control-tracks are 50 mils wide and occupy the space normally used for a standard single 100-mil track. Track dimensions are the same as for track *c*.[16]

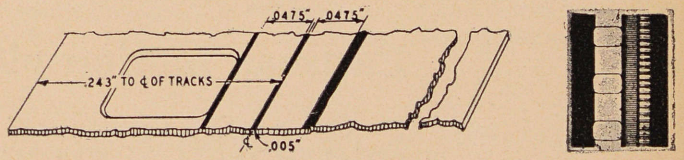


Fig. M

(n) 100-Mil Unilateral Variable-Area Comprex.—This is a combination of two half-width variable-area tracks which may be scanned by the same equipment as is used for track *m*.[16]

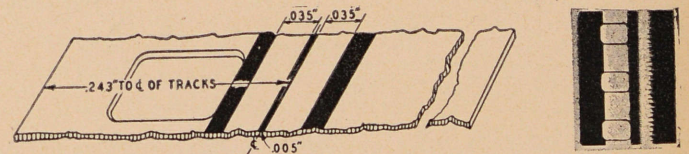


Fig. N

(o) 200-Mil Bilateral Variable-Area Comprex. — This track is intended for the same type of sound system as tracks *m* and *n* but utilizes a width of 200 mils.[16]

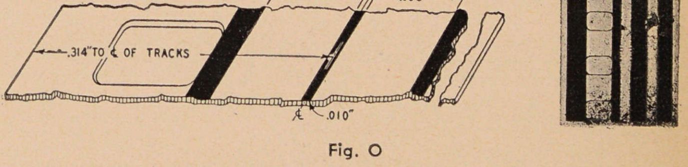
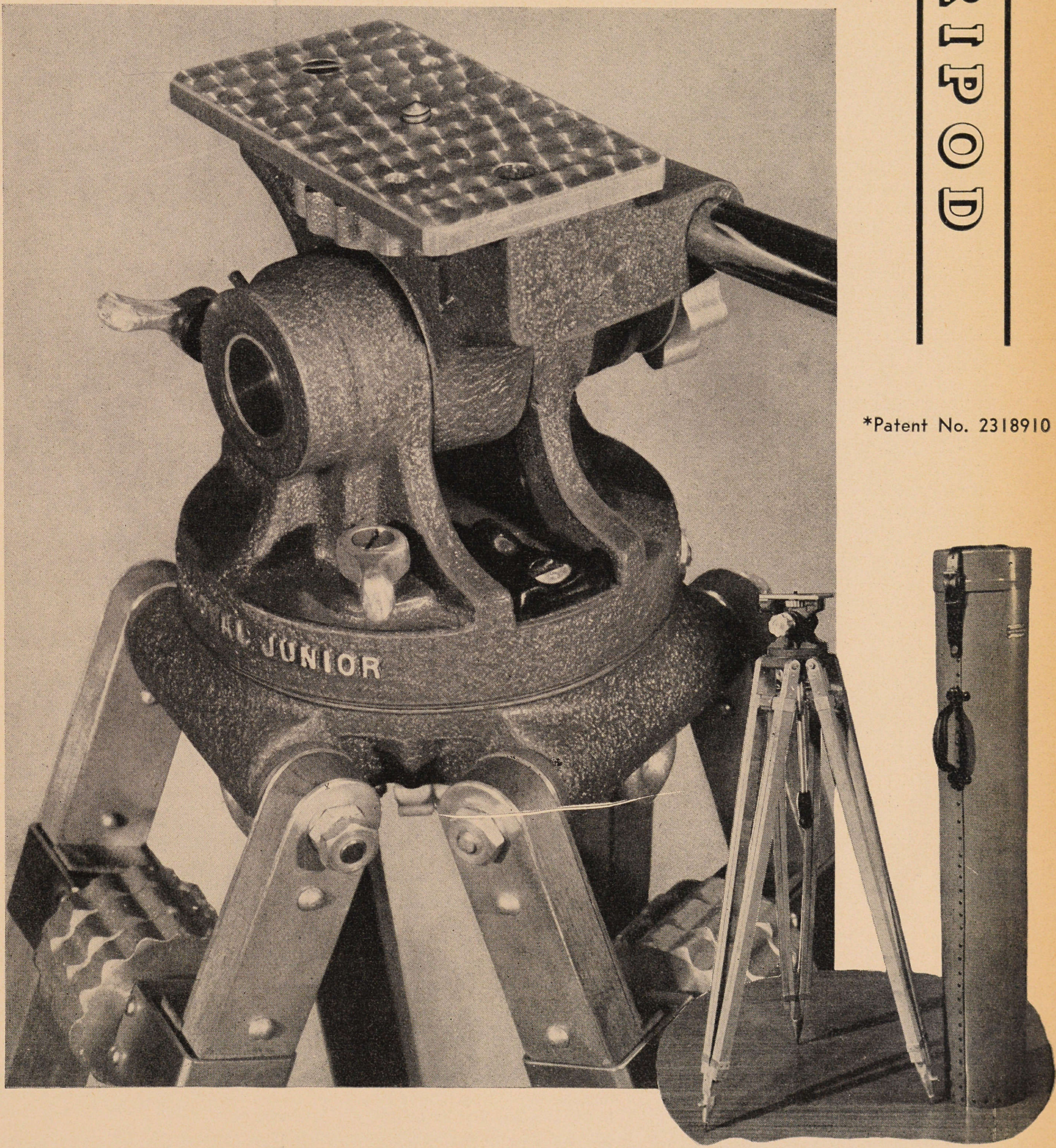


Fig. O

(Continued on Page 451)

Removable Head "PROFESSIONAL JUNIOR" TRIPOD

Trade Mark Registered



*Patent No. 2318910

*The friction type head gives super-smooth 360° pan and 80° tilt action. It is removable, can be easily mounted on our "Hi-Hat" low-base adaptor. The large pin and trunnion assures long, dependable service. A "T" level is attached. The top-plate can be set for 16 mm E.K. Cine Special, with or without motor; 35 mm DeVry and B & H Eyemo (with motor), and with or without alignment gauge.

The tripod base is sturdy. "Spread-leg" design affords utmost rigidity and quick, positive height adjustments. Complete tripod weighs 14 lbs. Low height, at normal leg spread, 42". Extended height 72". All workmanship and materials are the finest. The head itself is unconditionally guaranteed 5 years. Also available are heavy fibre carrying cases.

Cable: CINEQUIP
Circle 6-5080

CAMERA EQUIPMENT CO.

FRANK C. ZUCKER
1600 BROADWAY NEW YORK CITY

IT'S FUN TO DEVELOP AND PRINT YOUR MOVIES

By JAMES R. OSWALD

THE ardent home movie maker like his co-hobbyist, the still photographer, should not consider himself a veteran in the field until he has tried a hand at developing his own pictures. A little knowledge of what goes on between the time the exposed film leaves the camera and is threaded into the projector, ready to show, does nobody any harm.

"But," you say, "Movie film is much more difficult to develop than ordinary roll film, isn't it? Besides, why should an amateur take the time and trouble and run the risk of doing his own developing, when the processing cost is included in the price of the film, which will be finished by the laboratory without further charge?"

The answer to the first question is definitely, no. Fundamentally, the darkroom procedure for handling movies is quite the same as with still pictures, and anyone already acquainted with the principles of developing will have little difficulty in this respect. Because movie film is necessarily so much longer than roll film it is not advisable to try to handle long lengths though, unless a special rack is made or purchased, capable of accommodating more film. There are many such fine outfits on the market at reasonable prices, but best wait until you see how much home processing appeals to you before investing in one of these. I WILL say at this time that the job requires patience!

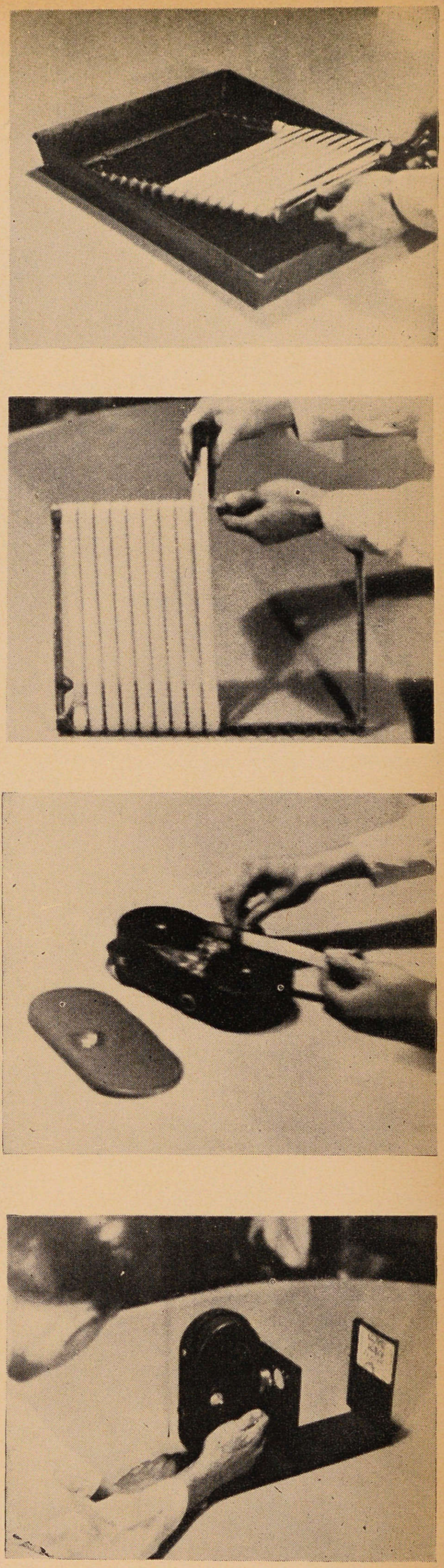
As for the reason for an amateur to take the time and trouble and run the risk of doing his own developing, when the processing cost is included in the price of the film, which will be finished by the laboratory without further charge . . . there IS a point there! All I can say in answer to THIS query is that home processing is not practical from such a viewpoint. This article is intended for the curious, serious-minded person, who likes to learn what makes things "tick," especially so far as his movie making hobby is concerned. Other readers, not so inclined, will do well to stop reading right here, as it is a sheer waste of time to continue any farther. There are many discouragements and disappointments in home processing and, as stated before, it requires almost unlimited patience, to do the work successfully. It is a job preferably for the advanced amateur, bent on seeing the process through successfully. Any one taking the time and effort to do this will be amply rewarded by the pleasure and satisfaction derived from knowing that the movies he projected are the result of his own work, ALL THE WAY THROUGH.

Now to continue with the method of procedure. As mentioned in the preceding paragraph, it is false economy to home-process the regular reversal film which is handled by the film manufacturer's laboratory. As most everyone knows, this type of film is first developed to a negative, comparable to snapshot negative, and then REVERSED to a positive print for projection . . . hence the name REVERSAL film. This method is the most popular for the home movie fan because the same film is eventually run through the projector as was run through the camera. Needless to say, this reduces the cost because only half the footage is required as would be were the print made on a different film, comparable to a snapshot print on paper.

If many duplicates are to be made, however, the negative-positive (2 films) system has the advantage. In this method the negative is run through a printing machine in contact with an unexposed positive film, thereby making a print for projection. This positive film is very cheap, compared to the regular type, and is extremely fine grained and has high contrast. For these reasons it is ideally suited for home experimenting, using a camera or projector as the printer, which we shall discuss later. All theatrical releases are prints from a master negative, as many copies must be distributed throughout the country. The master negative is afterwards safely stored away in the studio for future use. Because of the intensely complicated manner in which Kodachrome must be processed, it is absolutely out of the question to even consider carrying on this procedure at home, even if one has the ambition to do so.

As referred to a short while ago, your own movie camera, or projector, will serve as a printer for making duplicate copies of favorite scenes. I prefer to use the CAMERA, since it is already light-tight and hence only the loading operation need be carried on in the darkroom. The projector has the advantage of accommodating longer lengths of film, but it is wiser and less costly, to conduct experiments on a smaller scale anyway, at least until the technique is mastered. Also mentioned before was the fact that POSITIVE film is ideally suited for home experimenting. Although there are many other fine types of moderately priced films on the market equally suitable for home-processing, which includes regular NEGATIVE stock, the aforementioned POSITIVE type film remains the lowest in price, costing approximately one cent

(Continued on Page 446)



Top, a flat developing rack fits in standard size tray, and holds 25 feet of 16 or double 8mm. film. Next, the film is wound spirally around the rack. Adjoining film loops should be kept from overlapping by pins or grooves. Third from top: a contact print is made by threading the two films in the camera, emulsion to emulsion, with the shiny side of the raw film facing back of camera. Bottom, making titles by straight development.

Hit it right—the first time

THESE days, when you don't want to waste a single frame—consider Agfa Ansco Triple S Pan Film.

It has great speed.

But more than that—its balanced emulsion gives you brilliant results with outdoor shooting, yet avoids the harsh effects so common under artificial light.

It is sensitive to all colors.

But more than that—it is exceptionally fine-grained for a film with its phenomenal speed. In projection you get depth and clarity down to the smallest details.

Triple S Pan is sold in both 8 and 16mm sizes. **Agfa Ansco, Binghamton, New York.**

Agfa Ansco

8 and 16mm.

TRIPLE S PAN FILM

KEEP YOUR EYE ON ANSCO—
FIRST WITH THE FINEST

It's Fun to Develop Movies

(Continued from Page 444)

per foot in 16mm. or double 8mm. size. The economy angle should not be overlooked, because there WILL be waste. Although positive film is intended to be developed STRAIGHT, is may be reversed, the practice of which we will take up later. The straight developing method is the simpler, and therefore the better to begin with.

Assuming then, that a favorite scene, but one not TOO valuable to be used in experimenting, has been selected for duplicating, we will proceed with the printing. It is taken for granted that the original film to be duplicated was properly exposed in the first place, thus it will act as a sort of guide for our future efforts in this field. In fact from now on it will be found very wise, indeed, to keep an accurate written statistical record of all variables . . . film type . . . source of illumination . . . distance from camera, etc. All these things are best determined by carefully conducted tests, since conditions vary widely, and hence no definite rules or formulas can be given. Once this set of standards is correctly established, though, it will serve as a measure upon which to base new trials in time to come.

The first operation in the dark-room is loading the film. Bulk film is not daylight loading as is the reversal type, and therefore must only be opened in the dark-room. Since it is not spooled, either, it should be wound on an empty projection reel, for convenience sake. (Positive film doesn't belong to the panchromatic group, which means it can be safely handled in the comfort of a regular red safe-light . . . another of its many advantages). Wind the scene to be duplicated, together with the unexposed bulk film on a reel, emulsion to emulsion, in such a way that the shiny side of the ORIGINAL will be facing the camera lens, leaving the shiny side of the RAW film to face the back of the camera. The next step which is threading, is done in the usual manner, making doubly certain that the sprocket teeth engage BOTH films. The customary loops, before and after the film enters the aperture gate, should be a trifle larger than normally. The exposure button is then pressed a few times before the camera is closed, to see that everything is running properly.

It is safe now to light the white light, or to bring the camera outside, if the exposure is to be made by daylight. Artificial light is preferred, however, as it is always uniform, which simplifies matters in that respect.

In order to have at least some idea of how to start, I will set down some figures to go by, based on my own personal experiences. This information, mind you, is only approximate and should merely be used as a starting point from which to conduct your own experiments.

With the camera running at normal speed, and held 6 to 8 inches from the light source, I think your results will be quite satisfactory. For illumination, I use a 7½ or 10 watt bulb placed in a lamphouse removed from an old enlarger. In front of the bulb is an opal diffusing glass, which tends to spread the light more evenly. My camera has a removable lens which I take off before making the exposure. Otherwise, I would suggest opening the lens wide. If the exposure is to be made by daylight, point the camera towards the blank sky, not directly into the sun.

Should you desire to use the projector instead of the camera as a printer, it will be necessary to employ a somewhat different lighting technique, else the entire film will become fogged. Probably the best method in which to adapt the projector for this work is to construct some sort of a small, light-tight box in which to house the printing bulb. The front side of this box should be funnel shaped . . . in fact a regular tin funnel can be taped on with Scotch tape. The projection lens is then removed, and the narrow neck of the "funnel box" inserted in its place. This neck should be approximately the same diameter as the projection lens, if possible. Although the printing light will now only reach the portion of the film running through the aperture gate, it must be remembered that the rest of the film is not enclosed, as in the case of the camera, and hence the entire operation must be carried on in the dark-room. The same precautions in threading should be taken as before with the camera.

After the exposure has been made, the film is removed and immersed in a tray containing the developing solution. Regular D-72 developer, with which most of us are already familiar, can be used at the manufacturer's prescribed time and temperature. For higher contrast, especially when titles are to be reproduced, D-11 is advised. The film is then rinsed in a plain water or short-stop bath and thence in the hypo solution. When completely "fixed" it is placed in the final wash water, where it remains until all traces of hypo have been removed. It is very important that the film be kept agitated throughout the entire process. The final wash should be in running water, if at all possible. After washing, the film is hung up to dry in the usual manner, or if exceedingly long, placed on a drying rack, which we shall discuss shortly.

When totally dry the film should resemble a regular snapshot negative of normal density. If it doesn't, there is no use going any farther until it is remade. (An exceedingly dense negative indicates over-exposure . . . a light, washed out one, under-exposure). With the attaining of a perfect negative, the projection print is made in exactly the same way, by repeating the entire process.

The reversal method does away with this repeat step, since the same film that was once the negative, is made into the positive projection print. A somewhat different developing procedure must be followed, however, which is considerably more painstaking. After the film leaves the developer, instead of placing it into the fixing solution as is customary, it is first transferred to a bleaching bath which leaves a positive image but dissolves away the image already developed. This latent positive image, still being light sensitive, is re-exposed to the light of a Mazda bulb and then put back into the developer, thereby causing the latent positive image to become visible. From here the film is placed in the plain water or short-stop bath and thence in the hypo solution, as before.

I referred earlier to developing equipment capable of handling longer lengths of film. For doing this, some sort of a rack is necessary upon which the film can be wound, taking up a minimum amount of space and providing easier manipulation. There are several such racks on the market or, if you wish, you can construct one of your own. The simplest one of these is flat and rectangular in shape, around which the film is wound spirally, and held in place by grooves or guide pins. Resembling a picture frame, it can be made of wood, to any desired dimensions. A rack 11 x 14 inches will accommodate up to 25 feet of 16 mm. or double 8mm. film, and is convenient in that it will fit a standard size developing tray. The wood must be given a protective coating of chemically resistant lacquer.

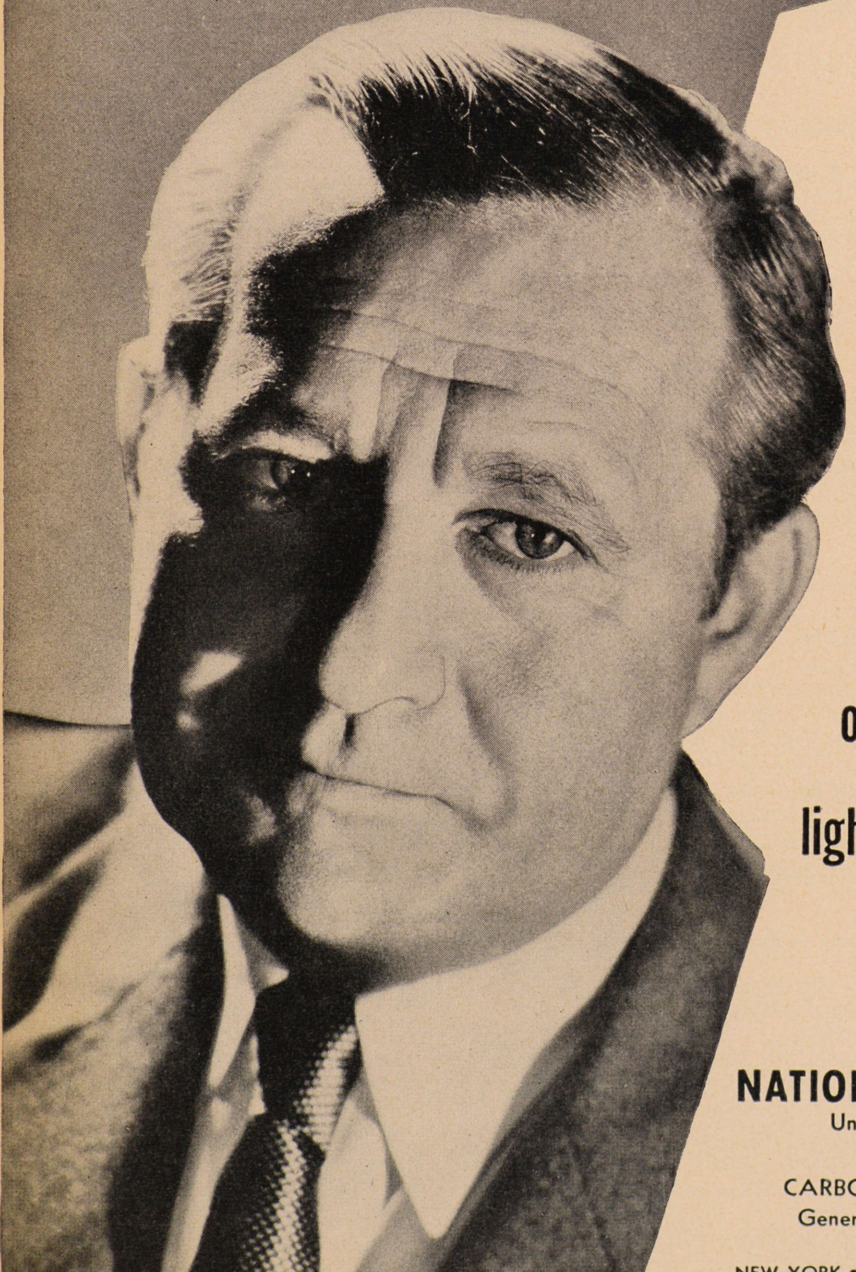
Another type rack is round and resembles a drum. This kind may also be constructed of wood, making only the skeleton framework of a drum, and a support upon which it can revolve, out of wood strips. The film, as before, is wound around the rack in spiral fashion, with guides to keep the adjoining loops from overlapping. A rack of this sort, because of its large circumference, will accommodate much longer lengths of film than the previously described, flat type rack. The revolving drum rack is usually made to take full 50 or 100 foot rolls of 16 or double 8mm. film.

Which of the two kinds of racks is the better, is a subject for debate. It is argued that the flat type uses a minimum of solutions, and the film being completely submerged, doesn't run the risk of aerial fog. The drum rack on the other hand, in addition to accommodating long lengths of film, provides easy agitation because of its rotating feature. For this reason, too, it is much to be preferred for reversal processing, since more uniform exposure is possible when the film is subjected to the light for the second printing, which brings out the latent positive image.

No matter which type rack is used, the film should always be wound EMULSION SIDE OUT, to prevent scratching those parts that come in contact with the framework. Because film expands somewhat when wet, some arrangement ought also be made to prevent its slackening

(Continued on Page 453)

ARTHUR EDESON, A.S.C.



"When you get on a big set, you thank your lucky stars for the 'punch' and carrying power of modern arc lighting."

FOR VICTORY
BUY
UNITED STATES
WAR
BONDS
AND
STAMPS

NATIONAL CARBON COMPANY, INC.
Unit of Union Carbide and Carbon Corporation
UCC
CARBON SALES DIVISION, CLEVELAND, OHIO
General Offices: 30 East 42nd St., New York, N. Y.
Branch Sales Offices:
NEW YORK • PITTSBURGH • CHICAGO • ST. LOUIS • SAN FRANCISCO

AMONG THE MOVIE CLUBS

Hirst Talks at Philadelphia

F. M. HIRST, who contributes many important articles to the AMERICAN CINEMATOGRAPHER, was the chief speaker at the November meeting of the Philadelphia Cinema Club. He spoke on "In Search of Beauty."

Mr. Hirst pointed out that the creation of a beautiful picture depends chiefly on the selection of material, the use of imagination and the feeling for design, and used sketches to illustrate the principles of composition. He then screened one of his own films, "Gloucester."

Utah Cine Arts Club

TWO 8 mm. Kodachrome films and two 16 mm. Kodachromes were the features of the November meeting of the Utah Cine Arts Club, Salt Lake City. Outstanding were "Cougar Hunt," by M. W. Robbins; "Skiing," by Norman Schultz, and "Snow White and Rose Red," by Theo. M. Merrill.

Members of the club are beginning to get excited over the club's 1943 Awards, and members have been urged to hurry their entries.

Long Beach Club

"IN the Beginning," noted film by Fred C. Ells, featured the November 3rd meeting of the Long Beach Cinema Club. This film was given an award by Movie Makers as one of the ten best pictures of 1943. Incidentally, burglars broke into the home of Mr. Ells recently and stole his entire movie equipment, amounting to something like $1500 worth of equipment he cannot replace because of wartime restrictions.

Minneapolis Cine Club

MEMBERS of the Minneapolis Cine Club are concentrating their all on the annual holiday meeting which will be held at the Leamington Hotel on the evening of December 14. There will be a turkey dinner, followed by showing of films and other entertainment in the hotel ballroom. Sounds like a good party is in the offing.

Syracusers Compare Meters

INTERESTING idea highlighted the November 16th meeting of the Syracuse Movie Makers. Members all brought their light meters and had a session of comparing meters, data, etc. Program of films followed the meter session.

Saint Louis Club Sees America

ONE of Joe Epstein's "Seeing America" films highlighted the November meeting of the Saint Louis Amateur Motion Club. It was a picture covering the Black Hills in South Dakota, Yellowstone National Park, Estes Park and Seattle, Washington. The film is on Kodachrome and made a decided hit with the members.

Also on the program was a film, "Let's Go Fishing," by Gordon R. Rader, which was a beautiful example of Kodachrome photography and scenic beauty. Third picture on the program was a war film showing the bombing of Pearl Harbor, the Battle for Egypt and many other authentic war scenes.

Metropolitan Club

FOUR films featured the November meeting of the Metropolitan Motion Picture Club. They were: "The Pageant Bubble," by Leo Heffernan; "Riches From the Sea," by T. J. Courtney; "Food For All," by Helen Loeffler, and "Desert Life," by Henry Hird of Ridgewood.

Quality of the films was exceptional. "Desert Life" was classed by many as one of the best 16 mm. films of 1941. "The Pageant Bubble" was a film about the Atlantic City bathing beauties—but was in black and white.

Brooklyn Club Sees Four

FOUR films, secured through the film service of the AMERICAN CINEMATOGRAPHER, were shown at the two November meetings of the Brooklyn Amateur Cine Club. They were: "New Horizons," "Garden Life," "The Brook," and "Santa Visits Elaine." Last named picture contained much trick photography.

Rations Disturb Frisco Club

DUE to ration difficulties the monthly pre-meeting dinners of the Cinema Club of San Francisco have had to be moved from the Women's City Club. The November dinner was held at the Stewart Hotel. Highlighting the after-dinner program were two pictures of Mexico, filmed by Rodgers Peal. One showed Mexican ruins, the other a bull fight . . . speaking of ration troubles!

L. A. 8 mm. Elect Officers

FOLLOWING officers were elected at the November meeting of the Los Angeles 8 mm. Club: Milton R. Armstrong, President; John N. Elliott, Vice-President; W. D. Garlock, Treasurer; Merwyn Gill, Secretary. Five films were shown at the conclusion of the election.

Film Review

Review of "The Adventures of Lightning Zezall, or the Dope Wins a Contest." 400 ft. Silent with narration on records. Kodachrome.

This was an attempt by the Chicago Cinema Club members to make a group film. The story and continuity was of the type that is undoubtedly of interest to the particular group who participated in filming it, but has no general appeal to outsiders. Consequently, we will only comment on the photographic treatment.

The credit titles indicate that several members were responsible for the photography and other technicalities, which in general were well handled. Most of the scenes were interiors in which the exposure was good, and surprisingly uniform, considering that various club cameramen displayed their skill. The opening titles were hand lettered, legible and well centered. Camera angles were carefully chosen, and effective use was made of lap-dissolves and fades.

Three phonograph records were supplied, intended to accompany the film with music, and narration. The usual difficulties were experienced in reviewing, trying to synchronize the projector speed with the turntable. Playing a recorded narration and dialogue in synchronization with a film is unsatisfactory, unless considerable time can be spent viewing the film and hearing the records repeatedly. Probably the group making such a production can obtain good results, after frequent rehearsals, but someone else using different equipment and unfamiliar with the records and film, finds accurate synchronization next to impossible.

A group production such as this one, would be of use to more club members, if it was made without records, and well titled. Probably, only a few members would be able to operate the records in synchronization, whereas a good titled film could be shown by anyone. The process of wording, making and cutting in properly plenty of titles is a splendid group undertaking, from which experience any member participating can derive considerable benefit, and learn how to turn out well titled films of his own.

EDWARD PYLE, JR.

ON TARGET

Here are the bombs . . .
Here is an enemy cruiser "safe" behind her torpedo net . . .

Official Photographs, U S. Army Air Forces

Kodak optical systems for fire control destroy the legend of "German supremacy" in lens making

For America's bombsights—which have shown our enemies the bitter meaning of "high-altitude precision bombing"—most of "the optics" are made by Kodak.

For our Army and Navy, Kodak also makes 29 of the most complex types of optical systems for fire control — the sighting of guns — including the famous height finder for anti-aircraft.

GERMANY has enjoyed a reputation for world leadership in lens making. But—as so often happens—reputation outlived performance.

Well before Pearl Harbor, Kodak optical research was developing lenses superior to any ever made by anybody, anywhere. A major advance has been the perfecting for new, finer cameras of a revolutionary new optical glass which gave lenses greater speed—definition . . . or could more than double the "field of view" of a fire control periscope.

This glass was immediately incorporated in instruments for fire control . . .

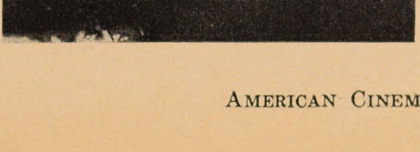
Effective fire power—hits, not "tries"—is the result of sighting through a series of lenses . . . an optical system . . . which locates, magnifies, and "ranges on" the target.

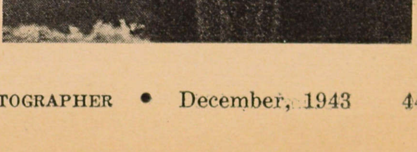
> *Army Ordnance experts now report:* "We have examined captured German sights and periscopes and, element for element, we are turning out better material."

The effectiveness of American fire power is making history . . . Eastman Kodak Company, Rochester, N. Y.

REMEMBER CORREGIDOR? *. . . and the last words over their radio —"Just made broadcast to arrange for surrender . . . everyone is bawling like a baby . . . I know how a mouse feels. Caught in a trap waiting for guys to come along to finish it up." Corregidor is a stern example to us at home.* **BUY MORE WAR BONDS.**

Serving human progress through photography





Snow Photography

(Continued from Page 433)

scene of action. The only filter I have been able to neutralize such a glare is the Pola Screen set at ninety degrees to the sun. Here again, the sky! It will be overcorrected. It is best to include as little of the sky as the composition of the scene will permit.

There are many combinations of filters that can be used very successfully by the photographer of experience working in the snow country. The combinations are almost endless. Like artists who paint pictures, the instinct, the intuition, the inspiration and, the knowledge and experience of one man is not that of any other. For example: In snow where there is high contrast, beautiful results can be obtained with several filters, depending upon the effect desired. If the desire is to soften the contrast of white snow and dark shadows, it can be effected with a combination of the light red 23A in combination with the 56 green, computing and combination factor of 7. If the effect is to be that of a night scene, stop down an additional 1½ stops. For contrast, the 29F of the dark red end of the spectrum with its overall daylight transmission of 7 percent, factor 10, stopped down another 1½ stops will render a beautiful night effect.

Snow is so very deceptive at times. I do most of the aerial photography required by our studio and I recall one time when I was covering an assignment to get some scenes of flying through clouds. I was sitting beside the pilot and suggested that "Just over there floated a beautiful cloud formation." The pilot smiled and asked if I'd like to get a closeup, and I nodded "yes." Upon getting closer to what had appeared as a beautiful cloud bank I found it to be a snow covered mountain. Snow covered mountains that project up through a sea of clouds have a very close resemblance to the white clouds they are engulfed in when viewed from a distance at high altitude.

There are moments during the shortest winter days in the snow latitudes when beautiful effects can be obtained with various filters during the morning and afternoon half hour period of cross light with its long shadows resting over smooth and rough snow or casting shadows on the surface of quiet pools with ice-fringed edges. Here a K3 filter will render water of a dark texture with transparent shadows crossing the snow. A yellow-red filter will render darker water and soft shadows of the snow contours. Beautiful effects can be obtained via this method where frozen-crested snow has a broken surface glinting the sunlight.

This matter of filterage when working in the snow latitudes is strictly a technique whereby an individual endeavors to manifest his own interpretation of the scene spread out before him, to express his personal impression and, is not a rule to be followed hard and fast.

Whatever the result obtained depends upon the knowledge applied to the individual filter selection for the effect he is trying to put into the photographic quality of his interpretation.

The rule of filterage is not one of "thumb" but one of expression dependent upon the artistic imaginative sense of the individual photographer, the creativeness of his mental ability, achieved through a long experience of observation and extensive study of the problems pertaining to his profession.

Many times, filters can be dispensed with. The color corrective quality of the film emulsion of the standard brands will compensate adequately for the nonuse of filters by rendering a truer expression than could have been obtained through the use of any filter. This result has been manifested many times when working in wet, thawing, slush-snow that is not so glaring white because it is old snow that has accumulated a dust covering since its formation; delicate reflections of sparkling light is glinted from the many little trickles of water given off by the melting snow and the darker patches of wet earth.

For me, the winter season in the snow country offers more opportunities for "mood" pictures than any other time of the year. Low hanging snow clouds can add a subtle mystery to a landscape, or seascape, that will help lift the dramatic effect of the story into better suspense. Ground fog, early morning fog, low-flying scud-mists are wonderful creators of "chills" and dramatic effect.

The snickery voice yawned an interruption. "It's a good story Jack, but it's time to eat. After all, I guess Africa isn't so hot."

NOTE: As one of the ace directors of photography and chief ariel cinematographer with the Metro-Goldwyn-Mayer Studios, Jack Smith has made scenes for feature productions in almost every country around the earth besides adding to his credit nearly 20,000 hours of service in the air. Editor.

Aerial Photography First Step To Battle

(Continued from Page 435)

Two of the major projects now under development at the Photo Laboratory are night photography and color photography. By use of specialized night equipment including "canned daylight" Army Air Forces now take aerial photographs from 30,000 feet at night. Increasing demands for color photographs useful in camouflage detection have resulted in a concentrated development of color photographic equipment. One of the latest projects developed by photographic manufacturers in collaboration with the Photo Laboratory makes possible color aerial photographs taken at night.

Through the work at the Wright Field Aerial Photographic Laboratory the enemy is finding it increasingly difficult to keep secrets from the Army Air Forces aerial photographers whose pictures may frequently save lives and mean the difference between victory and defeat on many battle fronts.

FOR LIGHT ON EASTERN PRODUCTION--

C. ROSS

For Lighting Equipment

As sole distributors East of the Mississippi we carry the full and complete line of latest-type Inkie and H.I.-Arc equipment manufactured by

MOLE-RICHARDSON, Inc.
Hollywood - California

Your requirements for interior or exterior locations taken care of to the last minute detail anywhere

☆

MOTOR GENERATOR TRUCKS

RENTALS SALES SERVICE

☆

CHARLES ROSS, Inc.

333 West 52nd St., New York, N.Y. Phones: CIrcle 6-5470-1

Recent Developments In Sound Tracks

(Continued from Page 442)

(p) Three-Channel Stereophonic Comprex. — This arrangement consists of three 100-mil bilateral variable-area sound-tracks, one for each of the three stereophonic channels, and a fourth 100-mil bilateral variable-area track on which are recorded the compression and expansion controls for all three channels.[16,17,18]

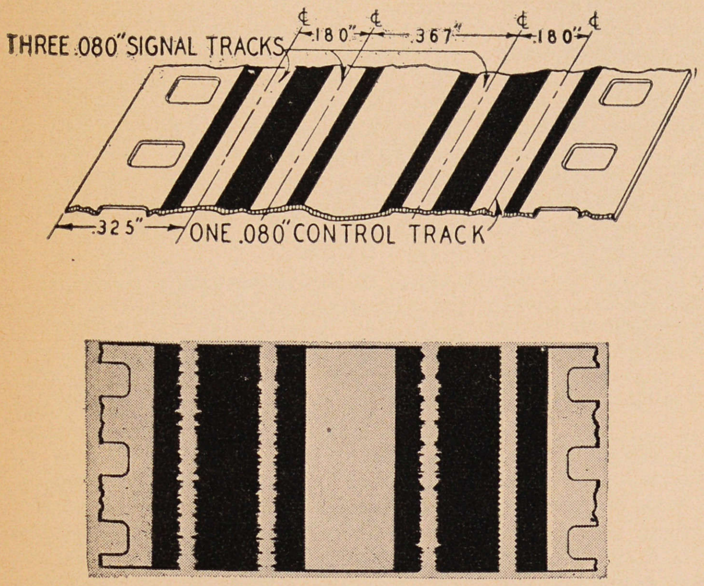


Fig. P

(q) 100-Mil Variable-Density, 5-Mil Control.—This consists of a single variable-density track having the dimensions of a standard 100-mil release print track, with the addition of a 5-mil-wide control-track located in the black region between sound-track and picture. In practice the control-track is variable-density, frequency-modulated. The control-track does not interfere with the playing of a film of this type on a reproducer not equipped for control-track reproduction.[19]

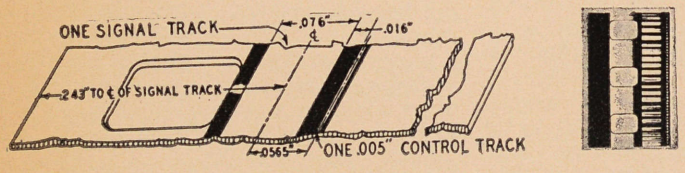


Fig. Q

(r) 100-Mil Variable-Area, Sprocket-Hole Control-Track.—This consists of a standard 100-mil variable-area track plus a variable-area control-track approximately 100 mils wide, located in the sprocket-hole area. The width of the control-track determines the volume change and may also be used for switching loud speakers.[20]

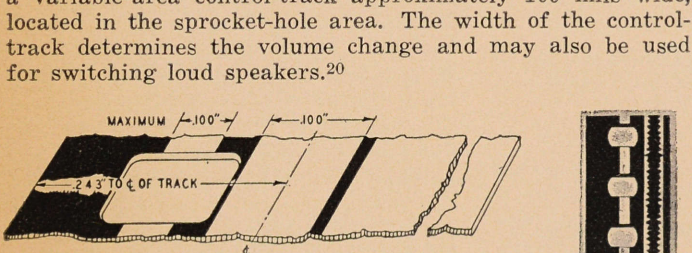


Fig. R

(s) Three-Channel Stereophonic Control-Track.—In this case three 22-mil stereophonic sound tracks occupy the space normally required for a single 100-mil track. A 5-mil control-track in the same position as in track *q* records control signals for each of the three sound-tracks. The sound-tracks and control-track are all variable-density, the control-track being frequency-modulated.

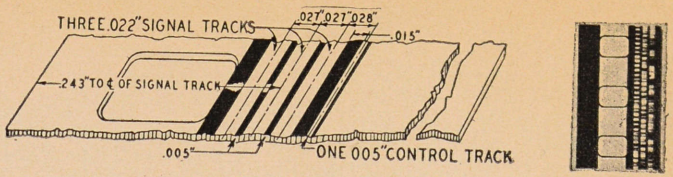


Fig. S

(t) Three-Channel, "Fantasound". — This arrangement employs four 200-mil variable-area push-pull tracks, three being used for sound, while the fourth carries signals for controlling the sound volume in various loud speakers.[21]

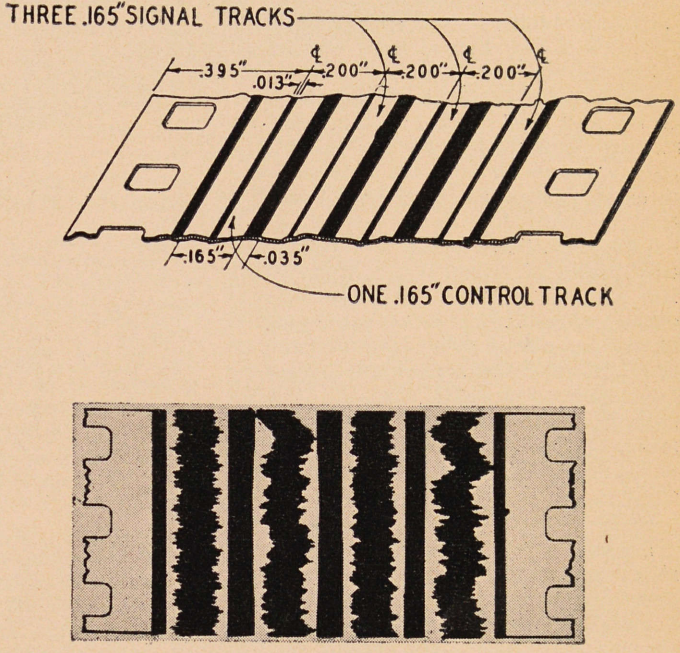


Fig. T

REFERENCES

(All references are to Journal of the Society of Motion Picture Engineers, except the first.)

(1) Technical Bulletin, Academy Research Council, "Standard Nomenclature for Release-Print Sound-Tracks" (Nov. 24, 1937).
(2) DeForest, L., (May, 1923) p. 61.
(3) MacKenzie, D., XII (Sept., 1928), p. 730.
(4) Miller, W. C., XV (July, 1930), p. 53.
(5) Crane, G. R., XXXI (Nov., 1938), p. 531.
(6) Frayne, J. G., and Silent, H. C., XXXI (July, 1938), p. 46.
(7) Wente, E. C., XII (Sept., 1928), p. 657.
(8) Marvin, H. B., XII (Apr., 1928), p. 86.
(9) Maurer, J. A., XIV (June, 1930), p. 636.
(10) Kreuzer, B., XIV (June, 1931), p. 671.
(11) Dimmick, G. L., and Belar, H., XXIII (July, 1934), p. 48.
(12) Sachtleben, L. T., XXV (Aug., 1935), p. 175.
(13) Dimmick, G. L., XXIX (Sept., 1937), p. 258.
(14) Cartwright, C. H., and Thompson, W. S., XXXIII (Sept., 1939), p. 289.
(15) Lorance, G. T., and Benfer, R. W., XXXVI (Apr., 1941), p. 331.
(16) Snow, W. B., and Soffel, A. R., XXXVII (Oct., 1941), p. 380.
(17) Fletcher, H., XXXVII (Oct., 1941), p. 331.
(18) Wente, E. C., Biddulph, R., Elmer, L. A., and Anderson, A. B., XXXVII (Oct., 1941), p. 353.
(19) Frayne, J. G., and Herrnfeld, F. P., XXXVIII (Feb., 1942), p. 111.
(20) Levinson, N., and Goldsmith, L. T., XXXVII (Aug., 1941), p. 147.
(21) Garity, W. E., and Hawkins, J. N. A., XXXVII (Aug., 1941), p. 127.

---

* Electrical Research Products Division, Western Electric Company, Inc., Hollywood, Calif.

** Electrical Research Products Division, Western Electric Company, Inc., New York, N. Y.

This article reprinted from August issue of the S.M.P.E. Journal.

Making Christmas Movies

(Continued from Page 437)

hundreds of miles on horseback to a photographer with his slow wet plates, long exposures and torturous iron head braces. Surely a picture was a rare and great event in their lives. But for you and me with all the fast films and modern photographic equipment right at our finger tips we have no excuse for not making pictures on this great day.

We have made stills and motion pictures for over a period of some thirty years and the other night while Mrs. Kershner and I were making our Christmas plans, we projected these films . . . for a few hours, time was swept away and we were whisked back to the cradle days of Robert . . . we saw Tom on his first sled riding in a blizzard. We laughed again when Norbert upset the turkey gravy all over his first suit and three Christmases later we watched Beverly with her candy sticky hands hugging the little kitten and wondering why pieces of tissue paper stuck to its fur and feet. These and hundreds of other enjoyable incidents photographed at various places over America came to life again on the screen and refreshed fond memories. All are the visable records of the children from birth to maturity to be looked at again and again and who knows, someday perhaps the children will be showing them over and over to their own children.

Leafing through the albums of snap shots and photos we saw many funny ones because we had nothing better than flashlight powder. Into this we would place a long fuse, light it and run for our position hoping to get there before it flashed but generally we were but a blur and moved all the others around us. If not this we had our eyes closed as tight as blind people. But not today. Now we have photo bulbs of high intensity for quick exposure or flash bulbs whose peak of light is so brilliant we can stop down the lens for greater depth of focus and so instantaneous the slightest move will not be seen, all without the old time results of blackening the ceiling or of burning holes in the rugs or carpet.

In preparing for our Christmas day we have made plans just where we will set the tree with the miniature winter scene around it right next to the fireplace where all the stockings will hang. By pushing the table over aways out in the dining room we can set up the camera, and shoot through the arch and get the children running to the tree and finding their stockings all in one scene. Then when we have dinner we take the camera into the living room and shoot through the arch again giving us a good picture of the folks at the table with plenty of head room. The chairs and tables in both rooms that prevent us from shifting our lights will be taken out of the room ahead of time to prevent confusion. We have set up the camera already and know just what will have to be moved and where we will have to place it and how much of the back walls we will get in the picture. Colorful shawls and tapestries will be hung at just the right places to make a good color balance. Green branches will be broken off the garden shrubs, stuck in cans of sand and set at places to cover up bare spots or to help in the compositions.

Next we make sure all the light extensions are in shape and that the main one is long enough to reach the ironing plug and then we bring in the lights and try them out for reflections. We will need some cardboards nailed on sticks to keep the lights from shining into the lens. We nail these on sticks and stand them in cans of sand. We find the photofloods from last Christmas are all right and repack them in a box and set all of it in the closet ready for use. In the meantime we have had a lot of fun deciding on what colored dresses, shirts and neckties we will wear and the color of flowers, candles, favors and dishes we will use to make a color balanced picture when the turkey is carried in on the big platter.

With all this planned ahead of time and prepared, confusion will be eliminated and you will get good pictures as well as having time to help the wife in the kitchen. And don't forget, making a few shots of the turkey going into the oven and when it is brought out all shiny and brown, with the wife smiling while you make it. There are two suggestions I would like to make. One is be sure to place the tallest folks farthest away from the camera at the dinner table. By this you will give the youngsters a chance to be seen and after all they are the ones we are mostly interested in. The other, do not forget a group picture with the parents, children and grandparents grouped nicely outdoors in a pretty setting for the family record. If ordinary black and white, place the group in the shade so the eyes will be natural and faces not all squinted up, but if color is used plan the time of day so that the sun is behind the camera and place the group so that the sunlight falls on three quarters of the face and you will then have a good photographic record of the family on this Christmas day of 1943. If they are worth making at all, they are worth planning well ahead of time, and more so if you expect to be showing them to your children's children thirty years hence.

P. S. Better shop early and not put off too long the buying of your films and photo flood lights.

Lantz's 'Wally Walrus'

Walter Lantz will introduce a new character which he developed in his forthcoming cartoon, 'Beach Nut.' New member of Woody Woodpecker family will be known as Wally Walrus. Tuner which Universal releases starts shooting this week.

Aces of the Camera

(Continued from Page 436)

next few years in Hollywood making pictures for M.G.M., who during his stay in Rome had taken over the old Goldwyn company, and First National Studios. Then in 1931 the travel-bug got him again. This time he headed for the Scandinavian countries.

Taking a Mitchell bi-pack camera, with Mrs. Boyle as business manager and Ray Fernstrom as his assistant, Boyle made the first color travel pictures in Scandinavia; covering Denmark, Sweden and Finland. Discovering for the cinema audiences places then little known, like Lake Ladoga, which have since become transformed into vital links with the world's future.

Back in Hollywood again, Boyle broke the monotony of the next few years studio routine with trips to Hawaii and Alaska before being called, in 1935, to England for a year. He arrived in England in Jubilee Year, which was all the more to his liking, to take over the camera assignment of Carol Reed's first directorial effort, "Mr. Midshipman Easy," that great adventure story and perennial favorite by Captain Maryatt. Down at Weymouth on location the company was fortunate in getting the permission of the Admiralty for the use of the large scale model of Nelson's famous flagship "Victory," which was on display there in connection with the jubilee celebrations, for use in the picture.

"I remember one very amusing incident regarding that sequence," John told us. "We had some very realistic action, with men hidden inside the ship, shooting Very pistols through the ports to simulate cannon fire while the ship was being towed on a course that would not bring into the camera field the flotilla of modern battlewagons anchored in the bay. But there was hardly a place on the horizon that didn't have a modern battleship impeding the view. Then someone suggested that we shoot against land, with the hills as a background. That sounded like a good idea till I looked up. And I decided no one would believe it. The hills around Weymouth don't look like England at all. They look just like California."

While he was in England Boyle received a rather unusual request from the Mitchell Camera Company. It seems they had sold a couple of their cameras to the Misr Studios in Cairo, Egypt's government subsidized film studio, but when the cameras arrived no one knew how to make them work. So the call went out to Boyle who flew to Cairo and showed them how.

"They were very nice to me in Egypt," Boyle recalled, "and they made me many flattering offers to stay. The Government officials and everyone whom I met were most enthusiastic about the future of motion pictures in the Near East. But I had to get back to England. Even though the Egyptians held out the lure

(Continued on Page 454)

It's Fun to Develop Movies

(Continued from Page 446)

and overlapping the guide pins or grooves. This problem can be solved simply, but effectively, by looping a rubber band through itself, over the starting point on the rack, attaching the film to the other end by looping it through the rubber band and fastening it to itself with a paper clip or two. The tension of the stretched rubber band will keep the film taut and will automatically take care of any expansion or slackening later on. The other end of the film should be fastened to the rack in the same manner. In this way any length film up to the maximum capacity of the rack can be handled, with the assurance that it will remain tightly in place throughout the entire process.

In drying a different rack is usually used, although not absolutely necessary, especially in the case of the drum type rack. The drying rack ordinarily resembles the drum type quite closely, still holding the film in circular or squared-off loops, but is more loosely constructed than the developing rack. By that I mean the film is suported in not more than 4 places each time it spirals around the rack's circumference. Probably the main reason for using a different rack in drying, is for the sake of cleanliness in this final operation. At this stage a fresh, clean rack in clean surroundings is good assurance for a spotless film. When thoroughly dry, and not before, the film is wound on a reel, ready for projection.

It goes without saying that fresh chemicals give best results. For economy's sake, however, the solutions may safely be used more than once. If stored in a cool, dark place in well corked bottles, they will keep for a reasonable length of time, particularly the hypo. The Fromader General Company of Davenport, Iowa, is one concern that can supply all necessary chemicals for reversal processing, as well as the developing and drying racks, for those desiring to purchase, rather than construct, their own equipment.

Developing and printing your own movies opens the door to many new tricks, heretofore thought impossible. Your own patience and ingenuity is the limit. For instance, a negative scene can be run through the camera in contact with an unexposed positive film to provide a motion picture background for a title, photographed in the usual manner. This also enables one to superimpose wording over previously made movie scenes, by first making a negative of them, and then following the procedure outlined above. Similarly, an endless variety of trick fades, wipes, and dissolves are possible, limited only by the cameraman's imagination and ability. These transitions, and many new ones that will suggest themselves, may also be employed in scenes where they are not already present, by clever manipulations and double exposures.

Those who for one reason or another do not care for the printing stage of the work, may still find enjoyment in the developing end. Titles, especially, are frequently made on economical positive film and developed "straight" . . . that is without reversing the film and without making a contact print for projection. When used for this purpose, the camera is loaded the regular way, with the emulsion side of the single film out and facing the lens. It should be recalled here that the film, when developed, will be in negative form. Therefore, all title cards should also have their color values reversed from the way they are to appear on the screen. In this way the result will be a positive projection print, the same as in the case of the other methods. Bear in mind, however, that this system only holds true for titles. Regular filming cannot be carried on using only a single film, developed "straight."

LAST CHANCE TO

WIN U. S. WAR BONDS FOR YOUR IDEAS ON *Tomorrow's* 8MM MOVIE CAMERA & PROJECTOR

COMPETITION CLOSES
MIDNIGHT FRIDAY DECEMBER 31st

WHAT DO YOU WANT IN YOUR POSTWAR MOVIE EQUIPMENT?

Neither mechanical genius, industrial designer, nor professional cameraman or projectionist has any priority on the $1500.00 DeVRY CORPORATION will pay for IDEAS as to *Tomorrow's 8mm* Motion Picture Camera and Projector.

From these experienced groups are bound to come important, practical contributions to the over-all design and mechanical improvement of postwar's 8mm equipment—but the amateur and the "home tinkerer" are certain to have IDEAS—ideas that may revolutionize an industry!

What do YOU want in the next motion picture camera YOU buy? How do YOU think it should look? Load? Operate?

What do YOU want in YOUR postwar motion picture projector? How can its operation be simplified, perfected? Have you an idea as to YOUR projector's appearance that you believe has merit and appeal?

It is YOUR answers to these questions, in rough sketch or finished drawing—with or without supplemental explanation, as you may desire—that DeVRY is looking for.

ENTRIES MUST BE MAILED BY DEC. 31, 1943

It is the USER's desires—whether you be professional, amateur, or just a "tinkerer with an idea" that will share these $1500.00 War Bond awards.

Drawing, designing or modelling skill is secondary. It is the IDEA that will win.

Write today for Official Entry Blank and its suggestions and conditions.

THESE HINTS MAY HELP YOU

DESIGN: Submit your Ideas—*in rough or finished drawing*—as to how you think the new 8mm MOTION PICTURE CAMERA OR PROJECTOR should look. Supplement designs with brief comments. Enter as many drawings as you wish.

MECHANICAL OPERATION: You may submit working models, mechanical drawings, rough sketches. *The idea is the thing*—how to simplify, improve, perfect either camera or projector operation—for instance:

PROJECTOR: Ventilating system (lamp house); optical system; film movement; reel arms; tilting device; film safety devices; take-up, framing, focusing and shutter mechanisms, etc. Can you suggest particular developments of these features?

CAMERA: (single or turret lens mount) view finder; shutter, footage indicator; loading mechanism; winding key; exposure guide; lens mount; focusing; single frame release mechanism, etc. How do you think these can be simplified, perfected?

DeVRY CORPORATION, 1111 ARMITAGE AVENUE, CHICAGO 14, ILLINOIS

ARMY E NAVY

Star awarded for continued excellence in the production of motion picture sound equipment.

DeVRY
New York • CHICAGO • Hollywood

Motion Picture Sound Equipment DeVry Chicago
Estab. Symbol of Quality 1913

Distributors in World's Principal Cities

WORLD'S MOST COMPLETE LINE OF MOTION PICTURE SOUND EQUIPMENT

THE BETTER WE BACK THE ATTACK WITH OUR BOND BUYING — THE SOONER THE VICTORY

BUY
MORE
BONDS

for difficult shots — THE ORIGINAL
Scheibe's Monotone Filter
INDICATES instantly how every color and light value of a scene or object will be rendered in the finished print *before* taking the picture. ·:· always ready.
GRADUATED FILTERS
Moonlight and Night Effects
FOG SCENES, DIFFUSED FOCUS AND OTHER EFFECTS
WRITE FOR FOLDER TWinoaks 2102
SINCE 1916
George H. Scheibe
ORIGINATOR OF EFFECT FILTERS
1927 WEST 78TH ST. LOS ANGELES, CAL.

BUY
WAR
BONDS
THIS "EYE" SEES INTO THE FUTURE
B&H Taylor-Hobson-Cooke Ciné Lenses do more than meet current technical demands. They exceed them—and their design *anticipates future improvements* in film emulsions. They are THE long-term investment lenses. Write for literature.
BELL & HOWELL COMPANY
Exclusive world distributors
1849 Larchmont Avenue, Chicago
New York: 30 Rockefeller Plaza
Hollywood: 716 N. LaBrea Ave.
Washington, D. C.: 1221 G St., N. W.
London: 13-14 Great Castle St.

Aces of the Camera

(Continued from Page 452)

of living tax-free in their land by the Nile. But I was very impressed with the country and told them I would be back. At the time I had no idea it would be so soon.

"In England I found myself slated to do the camera work on Walter Futter's Capitol Films production "Jericho," starring Paul Robeson, Henry Wilcoxon and Wallace Ford and released here under the title "Dark Sands." Part of the location shots had been planned for the company in Algeria. But when we got there things didn't pan out right, so, remembering my Egyptian connections, I asked for help which was graciously given and off we went to the Egyptian Sudan. Which was the location called for in the story anyway."

The shooting of "Jericho," or "Dark Sands," was one of the biggest adventures in Boyle's colorful career. The story concerned itself with one of the most fantastic events of modern times; the annual trek made by the natives of Nigeria across two thousand miles of Equatorial Africa to obtain their year's supply of salt. Banding together as a defense against the marauding Taurogs, the caravan assumes tremendous proportions. Fifteen thousand camels were in the caravan Boyle photographed.

"The original idea was that we would follow them in motor trucks, equipped for the desert," Boyle told us with a grin. "But it didn't work out that way. After only a few hundred miles even the specially equipped trucks refused to go any further. So we followed the caravan the rest of the way riding camels ourselves." John Boyle took it all as part of the day's work. But nearly 2000 miles by camel! And if you know anything about camels! Incidentally, even the reviewers who usually take the cameraman's work for granted or who choose to ignore it entirely, wrote paeans of praise about Boyle's spectacular desert sequences so brilliantly photographed in spite of the primitive conditions.

Boyle's intended year in England stretched into three. He worked at Ealing, Denham and Pine Wood before returning once more to Hollywood. "One can't afford to stay away too long. They forget you," he observed. But he wasn't back for long. In 1939 he was approached by Mr. Lawrence Thaw, a New York banker, who had planned a most pretentious motor expedition from Paris to India. Preparations for the trip had been going on for two years, the foreign governments through whose territory the expedition must pass had promised their cooperation and the prospect of adventure beckoned. On the other hand the threat of war was becoming increasingly ominous. But the temptations of the trip were too tantalizing. Boyle cast all other considerations aside and went. It turned out to be one of the most spectacular assignments ever covered by a motion picture cameraman. From Paris to Munich, then across Europe to Vienna, Budapest, Belgrade, Sofia and thence into Turkey, then to Syria, which they reached on September 3rd, the day war was declared. From Beyreuth they went on to Bagdahd, through Persia, into Afghanistan and entered India through the storied Khyber Pass.

During the course of the trip Boyle photographed a Bedouin desert feast, the exquisite mosaics of the Pearl Mosque, and in India, where the party was entertained by nine Maharajahs, Boyle recorded with his camera the exotic splendors of Durbars, palaces, treasures and silk-robed courts of these feudal potentates many of which had never been photographed before. The National Geographic Magazine carried a big spread of Camerman Boyle's pictures along with the story of the expedition. Life Magazine of November 25, 1940, devoted seven pages to pictures and laudatory comment of the film John Boyle brought back. "His pictures," said Life, "not only make a series of gorgeous travelogs, they constitute a documentation of Oriental civilization that may never again be duplicated."

We asked Boyle, was there any particular reason he liked to travel so much. "Well," he said after a moment's thought, "it's a good idea to get a fresh viewpoint. If you keep doing the same thing you get in a rut." "Even in Hollywood?" we asked. "Especially in Hollywood," he countered. "And besides, I think it most important that we learn, at first hand, just what the rest of the world is like. Here in Hollywood we make pictures with story locations in all parts of the world. It stands to reason that we can be more authentic, thus adding to the sincerity of the story as well as lessening the possibility of offending native sensibilities, if we have a personal knowledge of the country in question. The influence of the motion picture is so great that I feel movie makers should feel a greater responsibility in presenting factual things factually. This will be particularly true in the post-war era when international cooperation will depend on international understanding."

RENTALS SALES SERVICE
MITCHELL Standard, Silenced, N.C., Hi-Speed, Process, and Eyemo Cameras. **BELL & HOWELL**
Fearless Blimps and Panoram Dollys—Synchronizers—Moviolas
35mm Double System Recording Equipment
WE SPECIALIZE in REPAIR WORK on MITCHELL and BELL & HOWELL CAMERAS
FRANK-ZUCKER CABLE ADDRESS: CINEQUIP
CAMERA EQUIPMENT CO.
1600 BROADWAY N.Y.C. CIRCLE 6-5080

Girl's Idea Increases Binocular Lens Output

FOR keeping her bright blue eyes open, and her mind in the same condition, June B. Burhans, 461 Avenue D, has been given a $430 check by the Bausch & Lomb Optical Co.

Miss Burhans, a slim young blonde, is believed to have won one of the largest awards ever given to a woman for technical suggestions. At least she tops any previous woman worker with the company. She took advantage of the company's suggestion system to submit an idea for combining operations on certain optical parts which substantially increases production.

Objectives and eyepieces for binoculars are made of two elements cemented together and aligned optically. Ordinarily these lenses are matched, cemented, cleaned, and inspected, then transferred to another section where they are reheated, trued on an optical truing machine, cleaned and inspected again.

Miss Burhans conceived the idea that all these operations could be done at the same time and on the same bench. One girl could clean, then heat the lenses, cement them together and true them while still warm. A small plunger type fixture was designed and built in the company's machine shop for the truing operation and the basic idea made good. In practice, a team of two girls working as a unit was found better than one, but the basic idea remained—one heating, cementing, and truing on the same bench.

Slipped into a little plunger lathe, the cemented elements are quickly trued. Light striking the surface of the trued lens quickly discloses a reflected image which tells whether the lens elements are optically trued.

The new system raises the production of binocular eyepieces and objectives to *as many lenses in two-and-a-half days as were formerly produced in six.*

In Memoriam

Andre John Raphael Barlatier, A.S.C. Born in Paris, France, August 28, 1882. Died in North Hollywood, Calif., November 7, 1943. A beloved member of the American Society of Cinematographers for many years. His widow and his daughter are extended the sympathy of each member of the Society.

Electronic Tubes

(Continued from Page 439)

film acts as a variable medium between the arc lamp and the screen in the kinema.

This principle is covered by the title of a Diavisor, and many proposals have been put forward to give the desired results.

The cathode ray, for example, has been used to operate small mechanical shutters, to cause the orientation of small colloidal particles, and to produce birefringence in suitable substances.

The advantage of such a system in comparison with direct viewing of the fluorescent screen can only be obtained efficiently if the varying transparency values of the medium can be maintained practically unchanged over substantially the picture repetition period.

Such a tube is known as a Skiatron, and Fig. 4 shows the principle of operation. It is identical with a cathode ray tube, with the exception that the crystal screen is not luminous but exhibits an effect of electron opacity, that is, it can be rendered opaque by being scanned with a cathode ray beam. The opaque areas become transparent again after a short interval of time under the influence of heat. Research is concentrated on the production of suitable materials.

FOR RENT

ANIMATED CARTOON EQUIPMENT

35MM. SUCCESSIVE FRAME THREE-COLOR CAMERAS

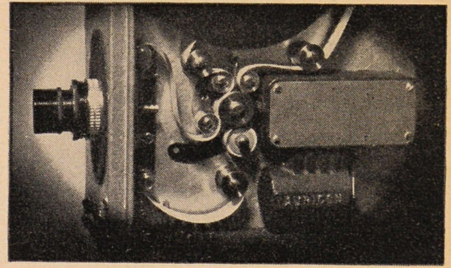
• •

ACME TOOL & MFG. CO.

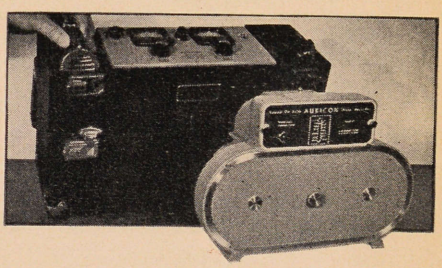
2815 W. OLIVE AVENUE
BURBANK, CALIFORNIA

Auricon SOUND CAMERA

for 16 mm sound-on-film



- ★ High Fidelity Sound
- ★ Self-contained in sound proof "blimp."
- ★ Minimum equipment; maximum portability. Camera and Amplifier, complete, weigh only thirty-seven pounds.
- ★ Kodachrome or black and white pictures with Auricon sound track will reproduce on any sound-film projector.
- ★ Can be operated in the field from an Auricon Portable Power Supply.
- ★ Auricon Camera with type "C" lens mount (but without lens) and Amplifier complete with microphone, instructions, and cases $880.00



AURICON 16 mm RECORDER

★ Variable-area sound on film, for double system recording with a synchronous motor driven 16 mm. camera. Amplifier has background-noise reduction and mixers for combining speech and music. With dynamic microphone, instructions and cases for Recorder, Amplifier, Accessories $695.00

★ Auricon 16mm. sound-on-film recorders and cameras are serving the Nation s War effort with Military and Government Film Units, and with civilian organizations producing essential morale and industrial training films. If your work in such fields makes you eligible to purchase new equipment, we invite you to let our engineers show you how Auricon portability and professional performance will simplify your recording problems.

AURICON *Division,*
E. M. BERNDT CORP.
5515 SUNSET BLVD., HOLLYWOOD, CALIF.

MANUFACTURERS OF SOUND-ON-FILM RECORDING EQUIPMENT SINCE 1931

GOERZ

"Goerz American"
CRAFTSMEN
are doing
their share—

The production line of "GOERZ AMERICAN" is formed by skilled men, who through painstaking work create high-grade photo-lenses and optical units for military instruments used by our armed forces,
on Land—
on the Sea—
in the Air—

These precise optical units are of the greatest importance to our armed forces, for without accurate military instruments for sighting, fire control and photographic aerial reconnaissance their fighting machinery would be of little value to them.

Optical science together with our craftsmen, doing their duty on the job in the production line, will hasten victory.

Our production is keyed to fill the requirements of our Government, and of others on orders with priority certificates. "GOERZ AMERICAN" lenses for civilian use will again be available after Victory.

To hasten Victory—
INVEST IN WAR BONDS

C. P. GOERZ AMERICAN OPTICAL CO.
Office and Factory
317 East 34th Street, New York, 16, N. Y.

"Goerz American"
PRECISION OPTICS
since 1899

AC-12

Index To Volume XXIV — 1943

A

Abbott—"Putting Sound-on-Film On a 16mm. Silent Projector": 181.
Accent on Pantomime: 138.
Accessories: 37; 38.
Aces of the Camera:
  XXIV—George Barnes, A.S.C.: 14.
  XXV—Phil Tannura, A.S.C.: 52.
  XXVI—Robert de Grasse, A.S.C.: 92.
  XXVII—Ray June, A.S.C.: 132.
  XXVIII—Milton Krasner, A.S.C.: 172.
  XXIX—Sol Polito, A.S.C.: 212.
  XXX—Virgil Miller, A.S.C.: 253.
  XXXI—Lee Garmes, A.S.C.: 295.
  XXXII—John Boyle, A.S.C.: [illegible]
Amateur Movies and the War Effort: 62.
Amateur Photography: 18; 19; 137; 177; 179; 334; 377.
A 'Model EE" Grows Up: 96.
Among the Movie Clubs: 23; 64; 104; 141; 183; 224; 265; 297; 340; 376; 412.
Anderson—"Vege-table-top Follies": 177.
Anhalt—
  "The Cameraman's Part in Television Production": 8.
  "Will There Be Cameraman-Directors in Television Production?": 46.
Arling, A.S.C.—"Cameramen in Uniform": 362.
Artistic Pictures: 368.
A.S.C. on Parade: 16; 54; 94; 134; 174; 214; 216; 256; 296; 406.

B

Bean—
  "Accent on Pantomime": 138.
  "Free-Wheeling": 57.
Better Pictures with Less Film: 219.
Black—"Nude But Not Lewd": 323.
Blaisdell, George: 174.
Blanchard: 14; 52; 92; 132; 172; 179; 210; 253; 254.
Bonnie—"Iowa's Health in 16mm.": 328.
Books: 24.
Borradai'e, A.S.C.—"Shooting Action Movies in the African Desert": 86.
Bosco—
  "A Camera on Skiis": 19.
  "Amateur Movies and the War Effort": 62.
  "Editing for Balance": 20.
Boyle, John, A.S.C.—"Practical Pointers on 16mm. Sound Projection": 102.
British War Camera Ace Wins Honorary Membership in the A.S.C.: 171.
Buckman—
  "Commentary-Writing for Documentary Films": 287.
  "Making a Documentary Film at Sea": 246.
Burlesque in Swing: 291.

C

Camera on Skiis: 19.
Cameras: 36; 56; 98; 140; 292; 330; 332; 383.
Cameraman's Part in Television Production: 8.
Cameramen in Uniform: 362.
Camerawork on a Convoy: 12.
Care and Operation of 16mm. Sound Projectors: 218.
Cheating on Camera-Angles: 217.
Cinematographers Responsible for Agent's Success: 398.
Clark, Dan, A.S.C.—"Consistency in Cinematography": 128.
Coles—"Matching Lens Diaphragm Settings: 401.
Color: 7; 13; 48.
Commentary-Writing for Documentary Films: 287.
Consistency in Cinematography: 128.
Conway—
  "Care and Operation of 16mm. Sound Projectors": 218.
  "How to Care for 16mm. Sound Films": 180.

D

Diary of a 10-Year Movie Maker: 402.
Direct-16mm. vs. 35mm. for Training Film Production: 91.
Do Your Mistakes Teach You What Not to Do?: 262.
Documentary: 246; 250; 287; 328.
Does Your Projector Grow Whiskers?: 22.
Doolittle—
  "Hands Are Nice to Hold—That's All": 365.
  "Production Still of the Month": 394.
Dyer, A.S.C.—"Kodachroming the 'P-38' in Action": 48.

E

Editing for Balance: 20.
Editorially Speaking: 312.
Edouart, A.S.C.—"The Evolution of Transparency Process Photography": 359.
Electronics in Photometry: 404.
Evolution of Transparency Process Photography: 359.
Exposure: 170; 263; 416.

F

Fastax High Speed Camera, The New: 292.
Fighting With Film: 324.
Film: 7; 180; 364; 370; 374.
Filming "Desert Victory": 167.
Filming an "Incident": 334.
Films Soldiers Want: 395.
Floral Spectrum, The: 300.
Forty-eight Years of Home Movies: 58.
Fosholdt—
  "16mm. Movies for Our Soldiers": 258.
  "Filming an 'Incident' ": 334.
Free-Wheeling: 57.
Freund, A.S.C.—"Illumination on Walls": 286.
From a Nazi Prison-Camp to a Signal Corps Camera: 51.
Furst—
  "Films Soldiers Want": 395.
  "Hollywood and Minorities": 326.
  "The Russian Influence in Hollywood": 288.

G

German Propaganda Movies in Two Wars: 10.

H

Hall, Hal—
  "Aces of the Camera—XXX: Lee Garmes, A.S.C.": 295.
  "Better Pictures with Less Film": 219.
  "Fighting with Film": 324.
  "The Sixth Sense in Film Mechanics": 361.
Hands Are Nice to Hold—That's All: 365.
Harlan, A.S.C.—"Hints On Outdoor Camerawork for Army Combat and Training Films": 206.
Harrison, F.R.P.S.—"Electronics in Photometry": 404.
Haskin, A.S.C.—" 'Special Effects' and Wartime Production": 89.
Here's How: 63; 142.
Hints on Outdoor Camerawork for Army Combat and Training Films: 206.
Hirst—
  "Planning Club Programs": 216.
  "Railroad Ramblings": 377.
  "The Floral Spectrum": 300.
Hollywood and Minorities: 326.
Hollywood Greets Four Soviet War Camera-Aces: 168.
Home Movie Previews: 25; 144; 266; 336.
How and Why of Titles, The: 182.
How to Care for 16mm. Sound-Films: 180.

I

I Made a 16mm. Sound-Camera: 56.
Illumination Contrast Control: 126.
Illumination On Walls: 286.
Improving Amateur Projection Technique: 410.
Incident-light Readings with Your Exposure-meter: 263.
Invaders Learn to Surrender: 400.
Iowa's Health in 16mm.: 328.

J

Jacobsen—"A 'Model EE' Grows Up": 96.
Jenkins—"Lapse-Time for the Amateur": 396.
Jepson—
  "More About 'Strobo-Sync' ": 222.
  "Strobo-Sync Sound Quiz": 264.

K

Kalatozov—"Third Dimensional Films in Soviet Union": 366.
Karmen—
  "Russia's Newsreel Cameramen at the Front": 208.
  "With the Advancing Army": 248.
Keep On Filming—Economically: 367.
Keeping Kodachrome Color Rendition Under Control: 13.

CAMERA SUPPLY COMPANY
ART REEVES
1515 North Cahuenga Boulevard
HOLLYWOOD Cable Address—Cameras CALIFORNIA

Efficient-Courteous Service
New and Used Equipmnt
Bought—Sold—Rented
Everything Photographic
Professional and Amateur

Kingsbury—"Using 'Strobo-Sync'": 294.
Kirchner—"Tempo in Industrial Films": 90.
Kodachroming the "P-38" in Action: 48.

L

Lance—"Cinematographers Responsible for Agent's Success": 398.
Landis—"There's a Job Overseas for Your 16mm. Sound Projector": 139.
Lapse-Time for the Amateur: 396.
Lens: 37; 61; 384; 401.
Lighting: 36; 286.

M

MacDonald, Hon. A. S. C.—"Filming 'Desert Victory'": 167.
Madden—"Shooting the War in New Guinea" an Interview: 209.
Make a Prize-Winning Film from Vacation "Left-Overs": 18.
Make Your Old Films New by Making New Titles: 21.
Maker—"I Made a 16mm. Sound-Camera": 56.
Making a Documentary Film at Sea: 246.
Making 16mm. "Horse Operas" in New Jersey: 137.
March—"Remarks on Cine Speeds for Amateurs": 302.
Marianoff—"Invaders Learn to Surrender": 400.
Marines Learn Photography in Hollywood: 364.
Matching Lens Diaphragm Settings: 401.
Maté, A.S.C.—"'Cheating' on Camera-Angles": 217.
McMahon—Making 16mm. "Horse Operas" in New Jersey: 137.
Meters: 126; 263; 286.
Military: 86; 167; 168; 206; 208; 209; 248; 324; 362; 364.
Milner, A.S.C.—"Preparation Pays a Profit": 211.
Miniatures: 130.
Mitchell: 330; 363.
Mitchell 35mm. Single System Sound Camera: 330.
More About "Strobo-Sync": 222.
Moultrie—"Improving Amateur Projection Technique": 410.

N

New Mitchell Background Projector, The: 363.
Norwood—
    "Exposure Control in Aerial Photography": 170.
    "Illumination Contrast Control": 126.
Nude But Not Lewd: 323.

O

On with the Show: 331.
Oswald—
    "Diary of a 10-Year Movie Maker": 402.
    "Keep On Filming—Economically": 367.
    "Post-War 'Dream Camera'": 332.
    "Props—The Secret of Really Natural Home Movies": 259.
    "Take Care of Your Camera and Projector—They're Priceless": 140.
    "The How and Why of Titles": 182.

P

Palmer—"Direct-16mm. vs. 35mm. for Training Film Production": 91.
Perry, A.S.C.: "Camerawork on a Convoy": 12.
Photography of the Month: 17; 55; 95; 135; 175; 215; 257.
Planning Club Programs: 216.
Pointers on Using Telephoto Lenses: 61.
Post-War 'Dream Camera": 332.
Practcial Pointers on 16mm. Sound Projection: 102.
Pratt, A.A.C.S.—
    "Artistic Pictures": 368.
    "Does Your Projector Grow Whiskers—?": 22.
Preparation Pays a Profit: 211.
Prist—"Shooting the War in New Guinea", an Interview: 209.
Production Still of the Month: 394.
Professionalizing the Bolex: 98.
Projection: 22; 38; 96; 102; 140; 181; 218; 363; 410.
Props — The Secret of Really Natural Home Movies: 259.
Putting Sound-On-Film On a 16mm. Silent Projector: 181.
Putting Sound On the Screen: 179.
Pyle—"On With the Show": 331.

R

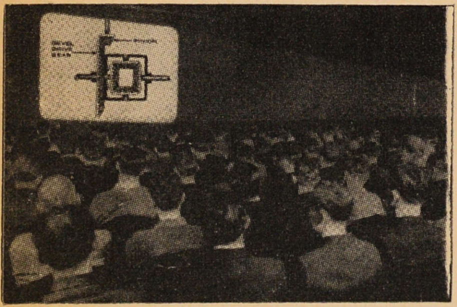
Railroad Ramblings: 377.
Remarks on Cine Speeds for Amateurs: 302.
Rhapsodic Technique, The: 250.
RKO Builds Biggest Boom for Shooting Aerial Miniatures: 130.
Roberts—"The Rhapsodic Technique": 250.
Rogers—"Screen Tests Aren't Necessary": 249.
Rohde—"German Propaganda Movies in Two Wars": 10.
Russian Influence in Hollywood, The: 288.
Russia's Newsreel Cameraman at the Front: 208.
Ruttenberg and Shamroy Win Academy Awards: 131.

S

Saving Film in Wartime: 370.
Scenarios: 18.
Schultz—"Iowa's Health in 16mm.": 328.
Screen Tests Aren't Necessary: 249.
Shafitz—"Why I Want to Make Movies": 50.
Shooting Action Movies in the African Desert: 86.
Shooting the War in New Guinea: 209.
16mm.: 19; 36; 56; 98; 102; 137; 180; 181; 218; 258; 328.
16mm. Business Movies: 24; 90; 106.
16mm. Movies for Our Soldiers: 253.
Sixth Sense in Film Mechanics, The: 361.
Smith, Jack, A.S.C.—"Pointers on Using Telephoto Lenses": 61.
Smith, Leonard, A.S.C., Elected President of the A.S.C.: 169.
Sound: 38; 56; 102; 218; 222; 264; 294; 330.
Special Effects: 37; 89; 359.
"Special Effects" and Wartime Production: 89.
Stensvold, S.S.C.—"Keeping Kodachrome Color Rendition Under Control": 13.
Strobo-Sync Sound Quiz: 264.
Strong—"The New Fastax High Speed Camera": 292.
Stull, William, A.S.C.: 287.

RUBY CAMERA EXCHANGE
Rents . . . Sells . . . Exchanges
•
Everything You Need for the
PRODUCTION & PROJECTION
of Motion Pictures Provided
by a Veteran Organization
of Specialists
35 mm. . . . . . . 16 mm.
IN BUSINESS SINCE 1910
729 Seventh Ave., New York City
Cable Address: RUBYCAM

They Came!
They Saw!
They Learned!



16 mm. Sound Motion Pictures teach our Armed Forces NOW. The Public will be taught to use new Products through the same mediums.

TELEFILM
INCORPORATED
6039 Hollywood Blvd. Hollywood, 28, Calif.
GLadstone 5748

Red Cross
Remember the
GIVE!

New Precision Products from
KALART
available on suitable priorities
NEW Model "E-I" Range Finder with war-time improvements. New FOCUSPOT for automatic focusing in the dark. And improved Master Automatic Speed Flash. Write for full information. The Kalart Co., Inc., Dept. 112, Stamford, Conn.

8 Enlarged TO 16 Reduced TO 8
Geo. W. Colburn Laboratory
Special Motion Picture Printing
995 MERCHANDISE MART
CHICAGO

MOVIOLA
FILM EDITING EQUIPMENT
Used in Every Major Studio
Illustrated Literature on Request
Manufactured by
GENERAL SERVICE CORPORATION
Moviola Division
1449-51 Gordon Street Hollywood 28, Calif.

FAXON DEAN
INC.
CAMERAS
BLIMPS-DOLLYS
FOR RENT
Day, NOrmandie 22184
Night, SUnset 2-1271
4516 Sunset Boulevard

Stull, A.S.C.—
  "Forty-eight Years of Home Movies": 58.
  "Hollywood Greets Four Soviet War Camera-Aces": 168.
  "Hollywood's Own War Plants": 252.
  "Incident-light Readings with Your Exposuremeter": 263.
  "Professionalizing the Bolex": 98.
  "RKO Builds Biggest Boom for Shooting Aerial Miniatures": 130.
Sweeny—"From a Nazi Prison-Camp to a Signal Corps Camera": 51.

T

Take Care of Your Camera and Projector—They're Priceless: 140.
Tannura, A.S.C.—
  "Do Your Mistakes Teach You What Not to Do?": 262.
  "Make Your Old Films New by Making New Titles": 21.
Technical Progress in 1942: 6.
Television: 8; 46; 408.
Tempo in Industrial Films: 90.
There's a Job Overseas for Your 16mm. Sound Projector: 139.
Third Dimensional Films in Soviet Union: 366.
Through the Editor's Finder: 15; 53; 93; 133; 173; 213; 255.
Tiffany—
  "Mitchell 35mm. Single System Sound Camera": 330.
  "New Mitchell Background Projector, The": 363.
Titling: 21; 90; 182.

U

Unseen Camera-Aces—
  I: Maximilian Fabian, A.S.C.: 210.
  II: Linwood Dunn, A.S.C.: 254.
Useful Hyperfocal: 100.
Using "Strobo-Sync": 294.

V

Vege-table-top Follies: 177.
Visual Education: 38, 91; 418.

W

Walker, Joseph, A.S.C.—"The Useful Hyperfocal": 100.
Walter—"Make a Prize-Winning Film from Vacation 'Left-Overs'": 18.
Why I Want to Make Movies: 50.
Will There Be Cameraman-Directors in Television Production?: 46.
With the Advancing Army: 248.

Pictures to Teach Spanish to Troops

AMERICAN troops stationed in the Antilles will see Hollywood motion pictures with super-imposed Spanish titles to assist them in learning the Spanish language, Colonel Smathers, in charge of special services for that area, told foreign managers at a luncheon meeting at the Harvard Club yesterday.

At the request of the Colonel all the majors agreed to supply a special Antilles Dept. of the Army's special service, with three prints of all pictures directly from New York. Antilles department covers Puerto Rico, Cuba, the Dutch Island of Aruba and Curacao, and other spots. U. S. bases in the area were formerly serviced direct from company exchanges in San Juan, P.R.

Servicing of prints from here will be on the same paid basis as previously, but will expedite showings and insure earlier screenings for the troops. A film man, likely George Barnett, will be appointed to handle the Army's Antilles department from New York.

Disney Museum Trustee

Walt Disney was elected a trustee of the Museum of Modern Art at the annual meeting of board of trustees. Disney was one of the first sponsors of the Museum Film Library and one of the first to donate his films to it.

Photography War Committee

THE American Standards Association has made public a request from the War Production Board on behalf of the armed services that it set up a War Committee on Photography to develop specifications for the various types of photographic and cinematographic equipment used by the armed forces. This followed action taken by a committee in New York at which representatives of the armed services and of manufacturers of photographic and cinematographic equipment thoroughly discussed the advisability of undertaking such a job.

This committee recommended: (1) that a War Committee on Photography be set up at once; and (2) that a subcommittee of representatives of the armed forces outline the order of the work so that the most important jobs can be undertaken first.

CLASSIFIED ADVERTISING

FOR SALE

OPTICAL SOUND REDUCTION PRINTER, COMPLETE, $1250.00; BELL-HOWELL SINGLE PHASE SYNCHRONOUS CAMERA MOTOR, $100.00; RCA GALVANOMETER STRING VIBRATORS, $5.00; 3-PHASE CAMERA MOTORS, RCA MITCHELL, $47.50; BELL-HOWELL, $77.50; TWO ELEMENT GLOWLAMPS, $9.50; DUPLEX 35MM STEP PRINTER, $425.00. S.O.S. CINEMA SUPPLY CORPORATION, NEW YORK 18.

WE BUY, SELL AND RENT PROFESSIONAL AND 16mm EQUIPMENT, NEW AND USED. WE ARE DISTRIBUTORS FOR ALL LEADING MANUFACTURERS. RUBY CAMERA EXCHANGE, 729 Seventh Ave., New York City. Established since 1910.

IMPROVED DUPLEX 35MM PRINTER, with two Bell-Howell Cams and Shuttles. Perfect Registration for Color or Black and White, and process plates. Also Bell-Howell Step Printer with Registration Pins ideal for duplication. 35 MM HOLMES AND DEVRY Portable Sound Projectors. Hollywood Camera Exchange, 1600 Cahuenga, Hollywood.

FORD 1½ ton Sound Truck equipped with latest Blue Seal noiseless variable area recording equipment, 220 volt, 3 phase generator for motors, battery charger, RCA and W.E. microphones. Complete, ready for operation. Also stock of synchronous and Selsyn motors. BLUE SEAL SOUND DEVICES, 305 East 63rd Street, New York, N. Y.

LIGHTS—SUPER KLIEGEL SUN 5000 watt. Clear Beam Super Spots 2000 watt. 2000 watt CP and 3200 K Bi-Post Bulbs. 5000 watt CP Bi-Post Bulbs. Film Associates, Dayton 9, Ohio.

MOLE-RICHARDSON Microphone Boom, Model No. 103B, Serial No. 37. Excellent condition, cannot be told from new. $1425.00 f.o.b. Glenview, Ill. Coronet Productions, Glenview, Ill.

FRIED LITE TESTER
In like new condition
CAMERA EQUIPMENT COMPANY
1600 Broadway New York 19, N. Y.

BERNDT-MAUER PROJECTOR, 16mm. camera, portable recorder, main channel, 2 film phonographs, RCA 70-B turntable and other equipment. Irving B. Dyatt, Corvallis, Oregon.

35mm. PARVO MODEL L DeBRIE all metal, motor driven camera. Complete with motor and five lenses, gyro tripod and other extras, $1,500.00. Len Galezio, 5914 Melrose Ave., Hollywood, Calif. Phone: HO-1767.

SALE—EYEMOS SINGLE, AND TURRET cameras, B & H Standard Complete Camera outfits; 12, 32, 110 volt motors, tripods; 16mm. high speed printer $750.00. Lots hard to get equipment in stock. Try us. Trades accepted, bought. MOGULL'S, 57 West 48th Street, New York 19.

FOR SALE

WESTERN ELECTRIC Double System 35mm Sound Editor; Holmes 16mm Sound Projector, 1000-watt Booth Auditorium type; Duplex 35mm. Printer for picture and sound track; 16mm. Continuous Contact Sound and Picture Printer; Akeley camera, 35-50-100-150-300-425mm. lenses; 5 magazine; motor, tripod many attachments; DeBrie camera, Model L, new tachometer; friction and crank tripod; 110 volt motor; Mitchell type mounts; magazines. WE BUY—TRADE—SEND US YOUR LISTS.
CAMERA MART, 70 W. 45th St., New York City

STOLEN!

1 BELL & HOWELL Utility Model SOF Projector and Loudspeaker, No. 304071.
1 3" projector lens, extra equipment.
1 1,000 watt lamp, extra equipment.
50′ rubber-covered leader.
1 Eastman Cine Special Camera, has my name, Fred C. Ells, engraved on a plate on the underside of the lens mounting. Usual 1" lens and adapter.
1 Eastman carrying case for same, blue velvet lining.
1 Eastman metal tripod, for Cine Special.
1 15mm. Wide Angle Eastman lens.
1 2" 1.6 Eastman Telephoto Lens.
1 4½" 4.5 Eastman Telephoto Lens.
1 6" 4.5 Eastman Telephoto Lens.
2 Kodachrome filters.

Anyone having information of above equipment contact Fred C. Ells, 844 Toyopa Dr., Pacific Palisades, Calif. Phone: Santa Monica 52628, or AMERICAN CINEMATOGRAPHER. An ample reward will be paid for its recovery.

WANTED

WANTED TO BUY FOR CASH
CAMERAS AND ACCESSORIES
MITCHELL, B & H, EYEMO, DEBRIE, AKELEY
ALSO LABORATORY AND CUTTING ROOM EQUIPMENT

CAMERA EQUIPMENT COMPANY
1600 BROADWAY, NEW YORK CITY, 19
CABLE: CINEQUIP

WE PAY CASH FOR EVERYTHING PHOTOGRAPHIC. Write us today. Hollywood Camera Exchange. 1600 Cahuenga Blvd., Hollywood.

WE BUY—SELL—TRADE ALL MOTION PICTURE EQUIPMENT, SOUND AND SILENT. SEND YOUR LIST. THE CAMERA MART, 70 WEST 45TH ST., NEW YORK CITY.

YESTERDAY
TODAY
and *Tomorrow—*

The Logical Combination

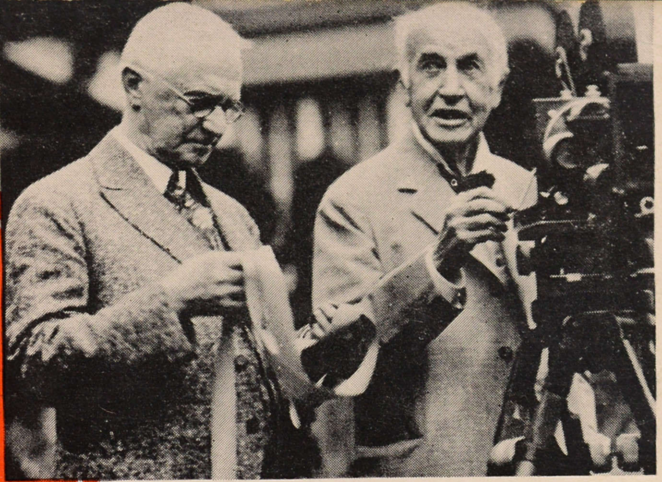
EASTMAN FILMS BRULATOUR SERVICE

J. E. BRULATOUR

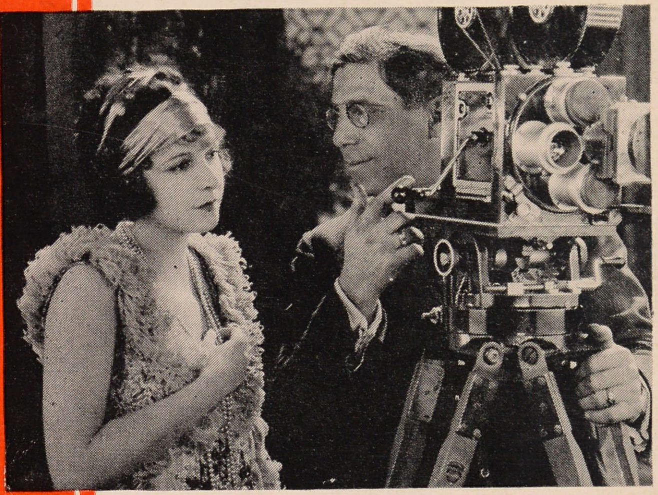
J. E. BRULATOUR, *Inc.*

FORT LEE • CHICAGO • HOLLYWOOD

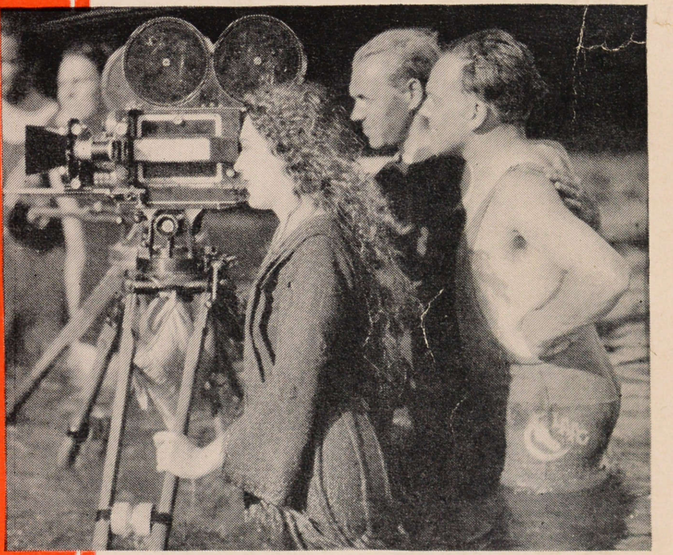
WENTWORTH



George Eastman Thomas A. Edison



Norma Talmadge Tony Gaudio, A. S. C.



Mary Pickford Charles Rosher, A. S. C.

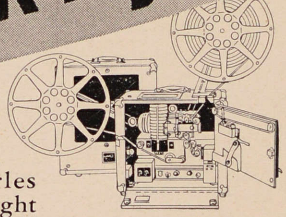
Today

(Tony Gaudio, Director of Photography)
"DAYS OF GLORY"
For Casey Robinson — R. K. O. Pictures

(Charles Rosher, Director of Photography)
"KISMET"
In Technicolor for Metro-Goldwyn-Mayer

More Than a Quarter of a Century of Faithful Performance ☆

Hometown Christmas ... for YOUR fighting man



FILMOSOUND V...— An achievement in B&H engineering which maintains high performance standards despite restrictions of critical materials. This projector is now made only for the armed forces.

He may be half a world away from you and the things that *mean* Christmas to him . . . but even in some strange part of the world . . . there's *one* familiar bit of home . . . *one* thing you both have shared and enjoyed together countless times.

There are MOVIES!

And again *this* Christmas you'll be sharing them . . . for overseas on *every* battlefront and battleship . . . in camps and bases . . . Filmosound Projectors will be clicking off movies . . . reminding your fighting man that the spirit of Christmas *still lives* in the world he's fighting for. And you may share these same films with him . . . and feel *less* lonely for the sharing.

B&H Filmosound Library offers you *and him* a great selection of special Christmas films. There's *Scrooge,* which is Charles Dickens' immortal *Christmas Carol* brought to life. There are *A Saviour Is Born* and *Child of Bethlehem,* beautiful filmings of the *First* Christmas.

Then, for pure holiday fun, there are thousands of Hollywood comedies, cartoons, shorts to build into a *memorable* Christmas home movie program.

And if you want to see what *your* fighting man in Africa or Italy is doing, get *Battle for Tunisia, Axis Crushed in Africa, Italy Surrenders* or *Allies Move In.*

Let Filmosound Library help you share Christmas with the boy you love . . . who's far away *this* Christmas. Bell & Howell Company, Chicago; New York; Hollywood; Washington, D. C.; London. *Established 1907.*

PERHAPS *YOU* CAN HELP US PLAN THE FUTURE OF OPTI-ONICS

We need expert engineers experienced in electronic and mechanical design to help us explore the broad peacetime horizons of Opti-onics. This is a *big* job . . . it takes *big* men. If we're talking to you, write us your whole story and send your photo. We'll set up an interview. Address Chairman, Opti-onics Development, 7100 McCormick Road, Chicago 45, Illinois.

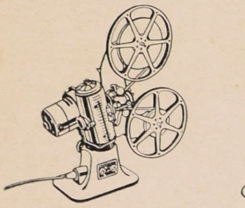
★ ★ ★

*Opti-onics is OPTIcs . . . electrONics . . . mechanICS. It is research and engineering by Bell & Howell in these three related sciences to accomplish many things never before obtainable. Today Opti-onics is a WEAPON. Tomorrow, it will be a SERVANT . . . to work, protect, educate, and entertain.

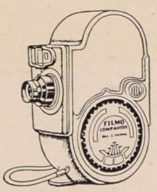
Opti-onics BELL & HOWELL

*Trade-mark registered

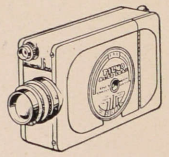
BUY WAR BONDS



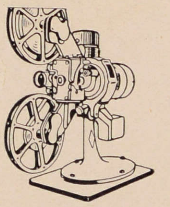
FILMO-MASTER "400" 8MM. PROJECTOR



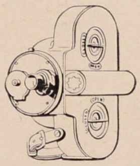
FILMO COMPANION 8MM. CAMERA



FILMO AUTO LOAD 16MM. CAMERA



FILMO MASTER 16MM. PROJECTOR



FILMO 70-E 16MM. CAMERA

These famous B&H products and the new ones you'll see after the war *won't* be "emergency-assembled" from leftover parts. They'll be as *carefully* engineered . . . as *precisely* built . . . as *rigidly* inspected as any B&H product has *ever* been. You'll buy them and *use* them with the same pleasure and *confidence* you've *always* had in equipment built by Bell & Howell.

RETURN OLD PROJECTOR LAMPS WHEN ORDERING NEW ONES

Products combining the sciences of OPTIcs • electrONics • mechanICS

PRECISION-MADE BY *Bell & Howell*

Bell & Howell Company
1848 Larchmont Ave., Chicago 13, Ill.

Please send me Filmosound Library Catalog and Supplements ( ) and reserve the following Christmas

films..

....

....

for...
(date)

Name...

Address..

City...State...........

AC 12-43